

THE
QUARTERLY JOURNAL
OF
ECONOMICS

OCTOBER, 1888

THE AUSTRIAN ECONOMISTS AND THEIR
VIEW OF VALUE.

THE Ricardian doctrine of value has had its share of the general sifting of cardinal principles which has been at work in England and abroad for the last two generations. No one would now agree with Mill that there is nothing in the laws of value which remains for any future writer to clear up.* In England, the criticisms of Jevons and others have made a deep impression. The positive doctrines of Jevons have not had an equal success, but they have fared somewhat better on the Continent; and, in Austria, a body of doctrines substantially identical with those of Jevons have become the tenets of a strong school, which has made Austria more prominent in economical discussion than she has been for at least a century. There seems to be something of the same intellectual rivalry between Austria and her German neighbors as between America and England.

* *Political Economy*, Book III. chap. i. § 1.

Karl Menger,* Friedrich von Wieser,† and Eugen von Böhm-Bawerk‡ are the leading writers of the school. Their German forerunners are chronicled by Böhm-Bawerk, as their English by Jevons; but, till Jevons and Menger, the doctrines now to be described were hardly before the public in either country.

Jevons seems to have had priority in time, having given his views to the British Association in 1862.§ His complete exposition, however, first appeared with his *Political Economy* in 1871; and in that same year Menger published his *Grundsätze der Volkswirtschaftslehre*, in which he expounded the doctrine of value as Jevons had expounded it.

The Austrian writer seems to have owed nothing to the English.|| Internal evidence alone would show that they were quite unconscious of each other's works. Their starting-points and their emphases are quite different. Jevons is suffering from reaction against Ricardo and J. S. Mill; and he lays most stress on his "General Mathematical Theory of Political Economy," or, in other words, his application of mathematical formulæ to the Benthamite Utilitarianism, upon which Ricardian economics had been largely founded.

Menger, on the other hand, is making stand against a very different enemy, the German historical school, whose methods had departed only too far from Ricardo; and he recurs to a deductive method based (as Ricardo's professed to be) on known principles of nature and

* *Grundsätze der Volkswirtschaftslehre*. 8vo. pp. 299. Vienna, 1871.

† *Ursprung und Hauptgesetze des wirtschaftlichen Werthes*. 8vo. pp. 228. Vienna, 1884.

‡ Two papers in the *Jahrbücher für Nationalökonomie*, entitled *Grundzüge der Theorie des wirtschaftlichen Güterwerthes*: Theil I., *Die Theorie des subjektiven Werthes*, in vol. xiii., N. F. (1886), p. 1; Theil II., *Die Theorie des objektiven Werthes*, *ibid.*, p. 477.

§ His paper is printed in the *Journal of the Statistical Society*, June, 1866, p. 282.

|| Of his followers, Wieser shows most signs of assiduous study of Jevons.

human nature, while following an apparently new path. He and his followers may occasionally make use of mathematical illustrations, but the important point with them is always what we may call (*pace* Böhm-Bawerk) the psychological analysis which is distinctive of their doctrine of value. Menger's somewhat heated controversy with Schmoller on the Methodology of economics need not occupy us here, though it serves to throw light on the mental attitude which led him to his new economical starting-point.*

Turning now to the "National Economy" of Menger, we find him at the outset assigning to economics the investigation of certain principles, fixed independently of individual will, which determine what makes a thing "useful," a "good," and a thing "valuable" to me, and under what conditions an economical "exchange" of goods can take place, as well as under what conditions prices move up and down. Ricardo might possibly have used the same language, but his difference from Menger appears as soon as the principles are examined in detail.

Ricardo has given a theory of value that concerns only commercial values. Like Adam Smith, he identifies "value in use" with utility; and, though he describes it as absolutely essential to "value in exchange," he treats it as a mere preliminary *conditio sine qua non*, which explains no distinctive feature of value in exchange. The specific cause of value is regarded as one of two alternatives:† it is either the scarcity of the article in question or the quantity of labor required to obtain it. There are articles (he says) whose value is derived from scarcity alone, and which have "a value wholly independent of the quantity of labor originally necessary to produce them and varying with the wealth and inclina-

* Compare *Quarterly Journal of Economics* for July, 1887, pp. 503, 504; *Jahrbücher für Nationalökonomie*, viii., N. F. (1884), p. 107 *et seq.*

† His illustrations show that he means one of two alternatives, and not a combination of two elements.

tions of those who are desirous to possess them."* He dismisses this kind of value as curtly as he dismissed value in use, and confines his inquiries to the exchange value of such goods as can be multiplied by labor or (to use a common phrase) are "freely produced."

To Menger and his followers, nearly every step in this proceeding is unsatisfactory. In the first place, they deny † that value in use is convertible with utility. They contend that the two are related as actuality to possibility. Utility means that an article is a possible cause of the satisfaction of my want; value, that it is the indispensable condition on which that satisfaction actually depends. All water and food are useful to a man; but, where both are present in abundance, they have no value for him, not even value in use: it is only when the satisfaction of his hunger *depends* on a particular loaf that that loaf will have value for him. The ordinary symptoms are that in the former case he is willing to waste, but not in the latter. In fact, utility and scarcity, the conjoint conditions of value in exchange in the case of *one* of Ricardo's two species of that phenomenon, are conjoint conditions of that value in use which is antecedent to both of them. Value to me means "importance for my welfare"; ‡ and a thing has no importance for my welfare if, in the first place, it can satisfy no want, and if, in the second, it exists with others like it in such abundance that I cannot consider myself absolutely dependent on it alone for my satisfaction, having all its fellows to serve my turn.

Differing thus at the outset from Ricardo's view of value in use, the Austrian economists take a different

* *Political Economy and Taxation*, chap. i.

† With Schäffle, in the treatise quoted below, *Ethische Seite*, p. 10.

‡ "*Bedeutung*," a phrase made current in this connection by Schäffle, the critic, as well as, in a sense, the forerunner of the Austrian school. See, e.g., his *Ethische Seite der nationalökonomischen Lehre vom Werthe*, Tübingen, 1862. Compare his *Mensch und Gut*, 1861.

view of its place in economical investigation. They believe that, if Ricardo had paid due attention to value in use, or, as they variously call it, "subjective value," or "personal value,"* he would not have found his treatment of value in exchange encumbered with so many difficulties, and he need not have banished scarcity value to the limbo of economical anomalies.

As Jevons, in opposition to Mill, insists that the whole theory of Political Economy must depend on a correct theory of consumption, so the writers of this school contend that the whole theory of value in exchange depends on a correct theory of value in use. "A national economics that leaves out the theory of subjective value is built on air."† One of them, indeed (Wieser), confines his main work entirely to this form of value.

Let us look at the manner in which they rear the building on this foundation. The difference, they say, between goods, or utilities, and economical goods, or values in use, being the difference between mere power to serve us and actual indispensableness to our service, is clearly a question of quantity. How, then, do we explain the paradox that such indispensable things as air and water have usually no value? The answer is that, though indispensable as a total, they are so unlimited in quantity that, in normal circumstances, no particular sample of them has any importance for our welfare. We must avoid the *fallacia sensus compositi et divisi*. Each part by itself is not indispensable. On the other hand, if we decrease the largeness of the whole, we bring the parts nearer and nearer to value till they actually reach it. We must, in all cases, regard ourselves as dealing with concrete wants and quantities, and not with generic or abstract; and we must in each given case be certain what our concrete facts are supposed to be. To a miller,

* "Subjective" value is a phrase of Neumann's adopted by Böhm-Bawerk. Wieser prefers "personal."

† Böhm-Bawerk.

a glass of water from his mill-stream has no value; for, if he has one dashed from his lips, he can get others from the same quarter. But let his total mill-stream be the concrete quantity considered, his total mill-stream has a great value to him, as he quickly shows, if his neighbor tries to cut it off from him. Yet, if mill-streams were as plentiful to him for working his mill as glassfuls of water from his own mill-stream are for quenching his thirst, he would attach as little value to the one as to the other. So air to a diver is to be had in limited quantities, and has value. To the ordinary man, it is to be had in unlimited quantities; and the particular quantity of it which he breathes is not indispensable (for he can get others like it), and has therefore no value. In other words, the considerations applied by Ricardians to one case of value in exchange can be shown to apply to every case of value in use.

In the next place, still confining ourselves to value in use, we ask ourselves what are the degrees of value, and why one thing is recognized as more important to my welfare than another. The psychologists may settle why it is that men identify their interests with material things, and associate the satisfaction of a want (which is the real aim) with the material goods or outward acts (which are only the means of its satisfaction). The economist assumes the fact of identification, and considers the various forms it may take. In doing so, he meets with *contradictions économiques* similar to the one about air and water, and recurring in economical text-books with the same tedious frequency as Cæsar and Caius in formal logic.

Supposing that diamonds and loaves of bread are both important to my welfare, inasmuch as both of them satisfy my wants: are not the two wants very different in kind, and is not the latter so much more important than the former that the loaves have a higher value in use than

the diamonds, although the diamonds have the greater value in exchange? Without dealing with exchange at all at this stage, we can answer (1) that the loaves have not really, except in an absolute dearth, so great a value in use as the diamonds; and yet (2), of the two wants concerned with these two several objects, the want of food is undoubtedly more vital than the want of jewelry. We have therefore to consider in each case not only whether an article is or is not indispensable to the satisfaction of a want, but whether the want in question is high or low in our own particular scale of wants. For every man arranges his wants consciously or unconsciously in a certain scale of importance, and decides that some must be satisfied before others. Not only so, but he also arranges what Jevons would call the "increments" of the satisfaction of each of them in another scale, and judges that the first draught of satisfaction of the highest order of wants must come before any satisfaction of lower orders, while, at the same time, the lower orders may have a claim above the latest increments of the satisfaction of the higher. Food may be prized more highly than tobacco; but the latter may be prized more highly than a fourth meal in the day, pleasant, but not needful for health and energy, and not so pleasant as the pipe. Most wants are satisfied piecemeal, and there is always a point where satisfaction ceases and satiety supervenes. Hence, the scale of degrees acts in combination with the scale of kinds of wants; and both of them are influenced by the individual character and standard of living and aim in life, as well as by general laws of human nature. The two scales may be represented in a diagram, which is taken with some slight alterations from Menger and Böhm-Bawerk,* and can be adapted and amplified at will by the reader:—

* See, e.g., *Jahrbücher*, xiii., N. F., p. 23. Cf. Jevons's *Political Economy*, chap. iii.

<i>Degree.</i>	<i>I. Food.</i>	<i>II. Clothing.</i>	<i>III. Lodging.</i>	<i>IV. Smoking.</i>
First,	Necessary for life.			
Second,	Necessary for health.	First suit, necessary.		
Third,	Agreeable.	Second suit, convenient.	1 room.	
Fourth,	Less keenly agreeable.	Third suit, desirable.	2 rooms.	4 pipes a day.
Fifth,	Still less keenly agreeable.	Fourth suit, not unacceptable.	3 rooms.	8 pipes a day.
Sixth,	Satiety.	Fifth suit, satiety.	4 rooms, satiety.	Satiety.

If the "subject" concerned in the above table were forced to retrench, he would encroach on the lowest lines of the latest columns first, or else the table has been inaccurate. As he was more closely pressed, he would ascend from right to left, till, if he were in desperate straits, all would go rather than the supply of the first degree of Want I. The arithmetic of the table would not bear to be pressed. The difference in degree of importance between one meal when it is the only accessible one and one meal when it is *any* one of five alternate meals is not as 5 to 1, but as infinity to 1. When we draw near to absolute necessity, the increase in importance (as has been noticed by economical observers from Gregory King down) is geometrical rather than arithmetical. Even in the case of what is not a physiological or even a social necessary of life, but is only made a necessary by the conception which a particular individual has formed of the ends of his own particular life, the importance of the object often increases with the decrease in its quantity in far greater than arithmetical proportion. The importance of a single available specimen of a particular Greek coin will to a collector be far more than double the importance of two specimens.

We become conscious of the gradations of our own scale of wants most clearly when we are either adding to our stock of goods or losing part of it, for an addition or subtraction might possibly affect the whole scale of wants, and would certainly affect parts of it. Looking further at our proceedings on such an occasion, we find that most of our stock of goods can be used to satisfy more than one kind of want. We may use corn for our own food, or we may feed our horses with it, or make spirits from it. How are we to judge what is the importance, or, in other words, the value, that is attached to an article having these alternative uses? The answer is (and it brings us to the central point of the theory): We judge of the value a man attaches to an article by the *lowest* use to which he is willing to put it. If he would light the fire with mahogany wood, the mahogany to him has simply a fire-lighting value; or, if he would feed horses with his corn, he values corn at its horse-feeding value. He feeds himself with it, too; but he has enough of it to make any particular quantity of it only of the horse-feeding degree of importance to him. We judge that such and such a use is the *lowest* from the fact that, when the stock of goods is decreased, that use is first forgone. For example, if the supply of corn were cut short, the horses would lose first, or (to take the other case) the mahogany would cease to be used as firewood. The value of an article, therefore, is to be judged in every case by the importance of the least important want that a man would actually satisfy by means of the said article, for only to that want, and not to the others, is that article an indispensable condition of satisfaction. "Subjective value" depends not on utility, but on "final utility" (*Grenznutzen*),—the lowest or least of the actual utilities rendered to us by the valuable article.

The theorists with whom we are dealing explain (one of them, Böhm-Bawerk, with peculiar care) that the

"dependence" is not to be taken as a fact of causation, but as an ascertained fact of interpretation. Looking on any completed act of valuation, we find that, consciously or unconsciously, it involves this regard to the final utility. On the other hand, when the action of an economic agent is viewed, not as completed, but as still in prospect, it is not the minimum, but the maximum, of utility that we suppose to be kept in view by him. The act completed, however, we ask, What is his actually lowest maximum? and that is the final utility now under consideration.

Cases of daily life at once occur to the mind, which this simple theory seems to leave unexplained. Böhm-Bawerk, whose skill in economical casuistry * is well known to readers of his book on *Theories of Interest*,† makes a brave attempt to clear up the difficulties. First of all, he says, we must not suppose the doctrine to mean that the final utility of a given whole is determined by the utility of its least useful part.‡ The value of the *whole* as a whole is determined by the final utility of the *whole*, and the value of the *parts* as such (*i.e.*, not as conjoined, but as separate and alternative pluralities) is determined by the final utility of the *parts* as such. For example, if we ask ourselves what is the value of a skin of water in the desert to a traveller there, whose whole water supply it is, the answer is that the final utility of the whole skin — all or nothing — may be infinite. It may mean life or death to the man. He would not sacrifice it for any consideration. But consider it not as one and indivisible, but as a collection of separate cupfuls of water, then the value of each cupful, as such, is determined by (which means is judged from) the worst use to which the traveller is ever willing

* His own phrase.

† *Kapital und Kapitalzins*. Band I., *Geschichte und Kritik der Kapitalzinstheorien*. 8vo. pp. 510. Innsbrück, 1884. This volume is at present (August, 1888) in course of being translated into English by Mr. W. Smart, of Glasgow.

‡ An interpretation countenanced by the language of Wieser and Jevons.

to put a cupful. If this be washing, then the value of each part is washing value: whereas the value of the whole as a whole is not washing value, but life or death value. In the second place, we are told that, though the final utility of the parts does not determine the value of the whole, yet it is rarely the case with any particular part that its value is settled by its own final utility; or else we should judge the cupful that quenched thirst in the desert to be infinitely more valuable than the cupful that washed hands or clothes. In all the parts but one, the final utility that fixes their value for them is "an alien utility," — the final utility, not of themselves, but of some other part, which in the above instance is the washing cupful. In the third place, what is true of similar specimens of the same kind of goods (*e.g.*, cupfuls of water) is true of goods that are replaceable at the sacrifice of a substitute of a different kind, whether in the way of exchange or in a more direct way. The final utility determining its value is in that case again "an alien utility," — the utility of the worst used substitute. If I lose my coat and do not replace it, then its final utility has been also its total utility, its worst use was also its best. But, if I replace the lost coat by giving up something else to purchase a new one or to wear *as* a coat, then the coat's value was not its total, but its final utility; and the latter itself is not its own, but the final utility of the means of replacement (money or otherwise).

So far as we have followed our authors, we should infer that final utility was an analysis of the nature rather than of the causes of value. It states the fact itself rather than the reason for the fact. From their own description, value appears as the effect of two causes,—utility and scarcity. The value of a shilling to me depends on its final utility in the sense that you only know its value to me, if you know its final utility to me. In other words, its value *means* its final utility. There still remains the

question,—*why* its final utility is no more and no less, *why* I would use the shilling for what turns out to be the lowest purpose for which I would ever use it, *why* do I stop so soon, and not go to a lower purpose, or *why* do I not stop sooner, and not go so low? The answer is that the limit is fixed for me by my wants and my resources, taken together and in relation to each other; in other words, by the thing's utility and (in relation to my resources) its scarcity. My shillings are so comparatively abundant that I can satisfy my wants thus far and no farther by means of them. The circumstances of modern industrial society, it is true, introduce complications into these relations. The scarcity of an article in relation to me is determined not only by the extent of my resources, but by the resources and "effective demand" of other people, by the "supply and demand" * of the goods in question over society at large. In ordinary cases, the said "supply and demand" affect the prices of goods, and therefore the extent of the deduction to be made from the individual's store, when he replaces a lost article by a substitute. On the other hand, the Austrian writers justly contend, if it were not for the varying "scales" of wants and the correspondingly varying "subjective" values attached by different people to the same article, exchanges would not take place, and prices would not be settled as they are now. "Objective value in exchange" is the resultant of separate subjective valuations of the competing individuals in a commercial society.

It may confidently be said that, unless the doctrine of "subjective" value is made to throw light on value in exchange, economists would not care to linger over it, as, after all, it is the social relations of human beings in the present industrial system that are of deepest interest to students of economics. Wieser's book, on its first appearance, was severely handled by Dietzel,† because the au-

* Expressions that are explained below.

† See *Jahrbücher*, xi., N. F. (1885), p. 161.

thor did not show the application of his theory to the world with which ordinary economists had always dealt. Professor Böhm-Bawerk has, with great courage and ability, endeavored to remove this reproach from the school to which he belongs; and his treatise on Objective Value must be almost our sole guide in the following exposition.

"Objective value," as he defines it, is by no means identical with value in exchange. Indeed, the latter becomes, from one point of view, a case of subjective and not of objective value. We may regard it as the importance to my welfare of an article exchanged by me instead of consumed by me. This close contact of "objective" with "subjective" value need not surprise any one who remembers the general impossibility of keeping these two philosophical notions, subjectivity and objectivity, out of each other's reach. But, for economical purposes, objective and subjective values may be kept apart without much practical difficulty. Objective value, according to our author, is best defined as simply the power of a commodity (considered out of relation to any particular subject) to produce certain effects. Firewood has heating value, food nourishing value; and (if the particular power conferred is power to exchange for other articles) a commodity may have purchasing value. The said purchasing value or purchasing power is therefore only one species out of many belonging to the genus Objective Value. It is economically the most important, and is practically the only one discussed by Böhm-Bawerk under this head.* He rightly refuses to confine the term "value" to one of the two main kinds, objective and subjective, or to attempt to prove that the two are forms of one and the same kind of value. He accepts both senses, because both are deeply rooted in the common language of men; and he tries to

* Others are, *e.g.*, letting value, hiring value, productive value (productiveness).

avoid ambiguity by means of the distinctive philosophical epithets, subjective and objective. It seems, on the whole, as precise a distinction as can usually be procured in economics, though, to English readers at least, the terminology would be a serious stumbling-block.

Value in exchange being first defined as the power one thing has to fetch others in exchange, the next preliminary definition is that of Price, which is said to be not "value expressed in money," but the actual equivalent goods (whether money or not) given in exchange. The *value* (in exchange) of a coat is thus its power to exchange, say, for two pairs of boots or for £4 in money. The *price* of the coat is, then, the two pairs of boots or the £4 in money. The distinction, it may be admitted, is intelligible, and can be preserved with a very fair amount of consistency. We are, however, at once led by it face to face with the familiar question of economical text-books. How is the price itself explained? The answer is that under free competition of buyers and sellers, and on the supposition that each of them is seeking his own greatest immediate advantage, the price is determined by the subjective value of the article concerned to the least strong* of the actual sellers and the least strong of the actual buyers. The case is analogous to that of subjective value, where the criterion, too, is not the worst of all possible, but the worst of all actual uses. A strong seller, again, is one who attaches comparatively little value to his article, and can therefore come a long way down or let it go for comparatively little. A strong buyer is one who attaches much value to the article he would buy, and can therefore go a long way up or give a great deal for it; and the least strong of the actual sellers and least strong of the actual buyers determine the selling price.

The normal case may be illustrated by the subjoined

* *Tauschfähigkeit*,—strength in exchanging,—a notion first fully treated by Menger, is much used by Böhm-Bawerk.

diagram,* where the articles offered are horses, all supposed of the same quality:—

WOULD-BE BUYERS. (Subjectively)				WOULD-BE SELLERS. (Subjectively)			
A ¹	Values a horse at	£60		B ¹	Values his horse at	£20	
A ²	"	"	56	B ²	"	"	22
A ³	"	"	52	B ³	"	"	30
A ⁴	"	"	48	B ⁴	"	"	34
A ⁵	"	"	44	B ⁵	"	"	40
A ⁶	"	"	42	B ⁶	"	"	48
A ⁷	"	"	40	B ⁷	"	"	50
A ⁸	"	"	36	B ⁸	"	"	52
A ⁹	"	"	34				
A ¹⁰	"	"	30				

There are only five pairs that can exchange at all with economical advantage, and these are the five strongest buyers and sellers. The price is determined by the valuations of the least strong of these; namely, A⁵ and B⁵. B⁵ can take anything over £40. A⁵ can give anything under £44. The price will be between the two figures.

An objection occurs. If the price is determined by the buyer's estimate of the article's value in use,† and if that, in the normal case of replacement by substitutes, depends on the buyer's estimate of the value in use to him of the means of replacement, does not this mean that the market price depends on the market price? The answer given by our author is as follows: When the buyer comes forward to get his substitute, he carries in his mind a presumption as to the state of the market. He values his coat at a certain low figure, because he has a certain presumption as to the scarcity of coats. He has presumed that substitutes can always be got at that presumed figure. The said presumption has determined his use and abuse of his coat all along; and, till he comes to the market, it

* Cf. Böhm-Bawerk, *Jahrbücher*, xiii., N. F., p. 495.

† It must be said, once for all, that Böhm-Bawerk dislikes this term; but it has been kept as the most familiar English equivalent for the quasi-philosophical "subjective value."

is perfectly rational. But in the market itself he must not presume. He must see for himself how the supply and demand actually stand, and raise or lower his estimate accordingly.

What, then, is the meaning of the "supply and demand"? These are terms for which Böhm-Bawerk has little respect, regarding them as the natural refuge of confused thinkers; but, since they are rooted in language, they must be explained. To explain them, he gives an account of the real reasons why the "subjective valuations" of what he calls the "terminal pair" * in the above diagram are at the height assigned. The said height is a result, *first*, of the numbers of the would-be buyers; *second*, of the degree of value these would-be buyers attach to the article concerned; *third*, of the numbers of would-be sellers; and, *fourth*, of the degree of value *they* attach to the article they would sell. Again, in the "degree of value" so specified is involved a comparison between the article concerned and the other article (say money) which is to constitute the price of it. If a buyer is said to value a horse at £40, this means that one horse has more importance for his welfare than forty sovereigns. It is a comparison of the two, horse and money, that determines the maximum amount of his offer; and, as the same is true, *mutatis mutandis*, of the seller, we must add to the above four reasons two more, the value of the *price* to the buyer and the value of the *price* to the seller.

But from the whole of this statement it is clear that two-thirds of the conditions of objective value depend on a comparison between wants and their means of satisfaction † over society as a whole. The old doctrine that "prices are regulated by the relation of supply and demand" was (we are told) not false, if the terms were un-

* *Grenzpaar*, on the analogy of *Grenznutzen*, which for its part may be translated either final or terminal utility, both terms used by Jevons.

† *Bedarf und Deckung*.

derstood to include not only the number of articles offered and desired, but the various motives influencing the buyers and sellers respectively. It is when demand and supply are both taken as quantities, and the price is said to depend on the suppliers and demanders agreeing to supply and demand the same quantity,* that the formula is wrong; for the height of the price depends not only on the *quantities* offered and demanded, but on the eagerness of the sellers and buyers. So, also, demand is often divided into effective and ineffective; but this is only right if it is remembered that "ineffectiveness" includes want of will as well as want of power. The demanders excluded from the fixing of the price are those that are not prepared to pay a certain price, either because "their poverty and not their will consents" to their withdrawal or because their notions of the subjective value of the article to them do not allow them to pay the price. Intensity of desire, too, can be recognized as a condition of a strong demand only if qualified in a similar way by the double limitation of resources and of standard of living,—in fact, if it is made as much a matter of will-ing as of wish-ing.

It is, however, in regard to supply that the most burning questions arise. Ricardo hardly allowed demand to influence price at all. When we ask on what depends the lowest figure at which the supplier is prepared to sell his ware, we are told by the supporters of the ordinary orthodox doctrine that (in addition to the value, for the seller, of the article he is selling, and the value, for the same seller, of the article, usually money, for which he is offering it) we must take into account the cost of production. But (according to our authors) the connection of cost with price is not to be found in any influence of the former on the decision of the supplier to sell or not to sell at a given minimum price. He will not sell for less than the article

* Mill, Book III. chap. ii. § 3: "The ratio intended is that between the quantity demanded and the quantity supplied." The next paragraph (§ 4) is in greater agreement with Böhm-Bawerk.

is (subjectively) worth to him; but he may and often does sell it below its cost, however reluctantly. The real connection between cost and price is the effect of cost on the *number* of articles produced. The law of cost is not to be opposed to the law of supply and demand, as if they were rivals on equal terms. Cost is only intelligible in relation to supply and demand, and in a very subordinate relation. The law of cost is a particular law of supply: it formulates the conditions of the supply, not of all articles, but of those that are "freely produced."

The discussion has reached a point where it has more than a mere academic interest; and no apology need be made for a somewhat full statement of the application of the doctrine of the Austrian school to the special questions of cost and the means of production. These questions come up first of all (in the writings before us) under the head of Subjective Value, though they are most familiar in ordinary economical discussions in connection with Exchange and Distribution. We are told that, to get a clear view of the situation, we must follow Menger in arranging the means of production according to their nearness to their final products. Let us call these last goods of the "first rank" (say, the finished loaf); goods one step removed, goods of the "second rank" (say, bread a-baking in the oven); another step removed, goods of the "third rank" (the flour in the mill); and so on till we get to the farthest traceable ranks (the elements from which the crops in the field are derived). The instruments used in the various ranks are (we suppose) to be ranked according to their respective goods, though it is materials alone that are mentioned by our author. The water-wheel, as affecting goods of third rank (grain becoming flour), would be itself of third rank. The description given by Menger* of capital as "nothing but a total of

* See *Volkswirtschaftslehre*, pp. 127, seq. But in his article on "Capital" in the *Jahrbücher*, July, 1888, Menger desires to confine the term Capital to

complementary goods of higher rank" (i.e., of a rank remote from the finished article) now becomes intelligible.* But, as to the question of cost, we want to know what determines (a) the subjective and (b) the exchange value of these remote means of production, whether instruments or materials. Now, on the principles of the school, the subjective value of these must mean, as subjective value means in all other cases, that they are an indispensable condition of my satisfaction, and thereby have importance for my welfare. In their case, it is true, they are a condition of a condition; but the indirectness does not alter the fact. "Prædicatum prædicati prædicatum subjecti."

Let the final product be called A, and its means of production G^2 , G^3 , G^4 , in order of remoteness. Let us assume for simplicity that these means of production are concerned only with this one article, and have no collateral or by-products. On what does the subjective value of each member of the series depend? The value of the finished article (or A) is determined by its final utility. As to the article of the second rank (G^2), if it were absent, we should lose the finished article (A) itself, and with it its final utility. In other words, the want satisfied by A depends, not only on A, but on G^2 ; and, as G^2 depends on G^3 , A depends on G^3 , and for a like reason on G^4 . In other words, all the successive and co-operating means of production, through all ranks of the series, are conditions of the final utility of their ultimate product, the article to be consumed. It follows (1) that the value of all members of the series is in principle one and the same; (2) that greatness or smallness of value is fixed, *in the last resort*, by the finished article's final utility; and (3) that it is fixed, *in the first instance*, for each member by the member directly succeeding it, or,

"money devoted to increase of income," and to use "means of production," as the least ambiguous term, in such investigations as the one now before us.

* See Böhm-Bawerk's *Kapital und Kapitalzins*, i. pp. 6, 256, 257.

in other words, produced by it. In practice, men do not refer to the last so much as to the first instance. They often take the former for granted on the strength of the commercial knowledge of themselves or others. A timber merchant, when he is considering what is the value to him of wood for cask staves, does not trouble himself about the ultimate destiny of the staves, but only about the quantity of them he can make out of a given quantity of wood, and for how much, when made, they will sell in the existing state of the market. Yet, if casks went out of use and fell in price, his staves would follow suit,—the value of the means of production thus proving its dependence on the value of the finished product.

On the other hand, it will be said that, as a matter of experience, we find the value of goods rising or falling with their "cost." Now, the cost is nothing but the total of the "productive goods," labor, capital, and any other outlay which must be expended to furnish a certain product. On this, it is to be remarked that "identity of cost and value" is only another phrase for the identity of the value of the means of production with that of the product, without any invidious indication of precedence. Popular language, however, too often suggests that the value of the product is *determined by* the cost of production, whereas the truth (according to our authors) is that the value of the "cost-goods" is determined by the value of the product. Our authors differ both from the "labor theory," which refers all value to cost and all cost to labor, and from the "Dualistic"* or Ricardian theory, which alleges two distinct sources of value (usefulness and cost), and refers to the one whatever it cannot explain by the other. But, as the statement of a mere tendency or approximation, the doctrine that value is identical with cost is, they admit, substantially true in the case of freely produced articles, any discrepancies in their case between cost and

* Böhm-Bawerk, in *Jahrbücher*, xiii., N. F., p. 61.

value being occasioned by the fact that production takes time,* and, between the first step in production and the last result of it, men and things may have altered. The wants of men, the comparative quantities of goods in the market and men's views about them, may change; and then their estimate of the subjective value of the goods employed in production will change also. Such discrepancies are beyond any fixed rule. There is, however, another discrepancy, which is permanent and regular; and it is the discrepancy caused by the mere length of time taken in the conversion of the means of production into the finished product. The value of the means of production in the remote ranks will lag steadily behind the value of the finished product, in proportion to the length of time taken in the passage from the former to the latter. In this kind of discrepancy, Böhm-Bawerk sees the real key to the phenomenon of interest on capital, though he has not as yet given his views to the public at length on this point. But, in the discussion of cost, he asks us to neglect both of the above kinds of discrepancy.

Let us now retract the assumption which we made,† that the given means of production concern only one kind of product. In most cases, the goods of second, third, or fourth rank, in the regress of the economic observer, may be capable of producing not one kind of article only, but a number of alternatives. Iron may be made into nails or ploughshares or fire-grates or fifty other things. The question to be asked is, Which of the alternative products determines the value of the common means of production?

Suppose a sample of G^2 to produce either A or B or C, and the final utility of A to be 100, of B 120, of C 200. The final utility of their common means of production (a sample of G^2) will be the lowest,‡—namely, 100; for,

* Cf. Menger, *Volkswirtschaftslehre*, pp. 40 to 45.

† Above, p. 19.

‡ That is, will be according to the lowest, allowance being made for the discrepancy of time and for the other co-operating elements,—labor, etc. Böhm-Bawerk, *Jahrbücher*, xiii., N. F., p. 538.

if we had only two samples of G^2 and had therefore to lose one of the three,—A, B, and C,—it would be A, as the lowest, that would be sacrificed, and it is therefore *its* existence that depends on a third sample of G^2 . Therefore, a G^2 , when it can be economically used to produce A at all, is in value to us as A, and not as B or C. In the same way, it might be shown that, of several alternative uses of a G^2 , the lowest, or that which leads to the lowest actually valued utility, will determine the value of G^2 . It appears, then, that the value of the least valuable ultimate product (of those products economically produced at all) determines the value of the antecedent means of production from the lowest rank to the highest.

We have next to ask what determines the value of the two other alternative products, B and C. If their own final utility, then their value would be greater than that of their means of production, which has been shown to become 100. But, as a B or a C, if lost, can be replaced by a substitute made from G^2 at the sacrifice of A, the said B and C will (by reasoning given in an earlier stage of this discussion) fall to the value of G^2 ; *i.e.*, to 100 instead of 120 and 200. In fact, to our surprise, we find that, in the case of replaceable alternatives, it is (in all instances but one) the cost that determines the degree of value, after all; and the common identification of cost and price is therefore (in their case only) perfectly justified.* It is an "alien" final utility that determines their value; and the alien utility in this case is that of an article which rules the value, also, of the cost-goods. Their value is therefore the same as that of their cost-goods. Though the road is roundabout, the point reached is the same as in the old Ricardian doctrine. Of freely producible goods, it is really as nearly true to say their cost determines their value as to say the west wind causes the rain.†

* Compare above, p. 11.

† Böhm-Bawerk, *Kapital und Kapitalzins*, i. p. 442.

Let us now apply the doctrine to the value that "dwells not in particular will," namely, to Objective Value in Exchange and to Price (whether in money or in other goods). These last result, as we have seen, from the subjective valuations of the finished product by the consumers; and, in their turn, they determine the demand, which is confronted by the stocks of producers as the supply. The market selling price results from the competition of subjective valuers, as already described.

Now, in each case, the height of the market price determines the height of the *subjective* value in exchange, and the value of the least valuable of the actually sold products determines the subjective value of the means of production. Each producer will subjectively value his means of production—say, iron—according to the market price of the article he makes out of it. One producer will value it, say, at 30*s.*, another at 40*s.*, another at 80*s.* a ton. With these valuations, they go to market. The *extent* of their demand is in proportion to the expected sale of their own goods. The *intensity* of their demand is in proportion to their several valuations above mentioned. No one will give more than the price he hopes to get for his article. The extremes would be, say, 2*s.* and 20*s.* The supply would be the stocks of iron from the mines, which will pass to the strongest buyers at a price between the estimate of the weakest of the said strongest and the estimate of the would-be buyer that just fails to be an actual buyer. The estimates in a great modern market would be so accurate that we may say the price is equal to the estimate of the lowest buyer. Now, as the lowest buyer's estimate depends on the price of his own article, the said article is the limiting article (or *Grenzprodukt*), the least valuable of the uses to which iron can, in given circumstances, be economically put at all. But for all goods above that lowest there is an inducement to makers to increase their supplies; and, the

more this is done, the lower sinks the point where supply and demand balance each other, till at last, in the case of the next lowest sellers, the price goes down to the limiting point, where it ceases to be profitable. This is how all prices tend to be identical with cost in the case of freely producible goods.

Such is, in outline, the theory of the Austrian school. To readers not familiar with its by-paths, it suggests some obstinate questionings. Those discussions of the relation of wants and the subject of wants to the means of satisfaction seem too easily apt (unless confined within rigid limits) to convert economical discussion into psychological. Even Böhm-Bawerk, who considers that the line of demarcation can be easily drawn, does not, in practice, avoid a blending of psychology with economics. A utilitarian psychology and ethics have colored his whole theory, as they colored that of Jevons. He makes the possibility of the doctrine of final utility to depend on the commensurability of pains and pleasures. He makes the individual subject the sole judge of what is his final utility, and of what to him, therefore, is "economical," or the opposite.* But this is very different from the hypothesis of the older economists, whose "economical man" was gifted with enlightened, as distinguished from unenlightened, self-interest. And it is remarkable that, as soon as the Austrian economist reaches their problem (objective value in exchange), he adopts their assumption, and tells us that his theory of exchanges is true of men who are pursuing their own gain with prudence and knowledge. There was surely no need to throw the "rays of utilitarian darkness" into the subject at all. Such a table of wants as is given above (page 8) might be drawn up by philosophers of widely different schools or by ordinary economists with-

* Böhm-Bawerk, *Jahrbücher*, xiii., N. F., pp. 13, 50, etc. Yet he speaks, on page 53, of a "true" as distinguished from an apparent value.

out any philosophy at all. To introduce the philosophical theory that all motives are pleasures or pains, and each individual is the supreme judge of his own ends, is to cast doubt on the existence of any objective truth in the whole matter, and to make the very distinction between economy and waste an incomprehensible riddle. It may be added that, to those who believe that economic processes can and ought to be studied separately from philosophy, even though the economists' results need to be complemented and supplemented by the sublimer study, the very use of philosophical terms for economical facts seems unnecessary and inexpedient.

But, looking now at the general conclusions of the Austrian theorists, we may observe that they involve no "Copernican change of attitude," or, in other words, no complete revolution in economic doctrine. The seeds of the new views may be found in the old economists.* Not to go back to Lauderdale and Malthus, we find, in such passages as the fifteenth chapter of Mill's Third Book, for example, a full acknowledgment of the important part played by "subjective value" in economical processes:—

If one thing [says Mill, speaking of the Measure of Value], either by itself or by what it would purchase, could maintain a laboring man for a day, and another could maintain him for a week, there would be some reason in saying that the one was worth, for ordinary human uses, seven times as much as the other. But this would not measure the worth of the thing to its possessor for his own purposes, which might be greater to any amount, though it could not be less, than the worth of the food which the thing would purchase.

And, in the passage immediately following this (the well-known section on Joint Cost of Production), Mill distinctly speaks of the "law of supply and demand" as "a law anterior to cost of production and more fundamental." In an earlier passage, he had said that "the utility of a

*Professor Böhm-Bawerk (who has been kind enough to read the manuscript of this paper) points out that he has amply acknowledged this in his second paper on Value, *Jahrbücher*, xiii., N. F., p. 502.

thing in the estimation of a purchaser is the extreme limit of its exchange value." (Book III. chap. ii. § 1.)

The idea so common in economical writers, from Lauderdale * down to J. S. Mill, that "wealth" consists of "desirable things limited in quantity," gains its clearest interpretation when wealth is understood as a sum total of things subjectively valuable, in the sense defined by the Austrian school. Nothing but this will save such a saying as, "Though air is not wealth, mankind are much richer by obtaining it gratis," from self-contradiction.

The service, therefore, that Jevons and the Austrians have rendered to economic theory seems to be, not the first introduction into it of "subjective value" (as if that were a new thing), but the clearer definition of it. "Final utility" is rather a definition of value than an explanation of its causes, and the charm of a new term (itself in need of explanation) seems to have led them to exaggerate its merits at the expense of more vital parts of their own doctrine. Even by their own accounts, the notion of "final utility" throws light rather on the nature than on the causes of value; and, as with wealth, so with value, the causes are our real difficulty. The service of the school is to have shown, not merely that "subjective value" means final utility, but that the causes of subjective value are the causes of all economic value whatever, whether value in use or value in exchange. Jevons himself makes practical acknowledgment of this when, in his *Primer* (1878), he gives the causes of value in great detail, but says nothing at all of "final utility."

Again, it may be doubted whether the Austrian economists have fairly met the challenge made by their critics to show the application of their doctrine to the modern world of exchanges.† Böhm-Bawerk (in his reply to

* On *Public Wealth*, p. 57.

† Emil Sax has applied it to Taxation in his *Grundlegung der theoretischen Staatswirtschaft*. See *Quarterly Journal of Economics*, July, 1887, p. 504.

Dietzel's review of Wieser's book)* does not deny their obligation to do this, and the whole of his second treatise (on Objective Value) may be considered an attempt to fulfil the obligation. At the same time, the criticisms passed by him, by Menger, and by Wieser on such views as the "cost theory," and especially the "labor theory," of value, masterly as they often are, are, upon the whole, such as might have been used by economists like Wagner or Cohn, who differ from them on what they treat as the main question. There are signs that the shrewdest of the socialists themselves are ceasing to stake their political and social plans on the too vulnerable theories of Robertus and Marx, and that they would hardly dispute this part of the ground any longer. In any case, such propositions as that of Jevons, that "labor once spent has no influence on the future value of any article," are so far from peculiar to the school that, as Wieser points out, they might be deduced from the reasonings of Mill himself.† The very idea of final utility might perhaps have been suggested by the Ricardian doctrine that Rent is determined by the fertility of the least fertile soil in profitable cultivation, and we might speak of the Ricardian law of rent as the principle of *final fertility*. Its affinity with final utility has, in fact, saved the doctrine of Rent from alteration at the hands of Jevons or the Austrian economists.

In regard to the doctrine of Capital, Interest, Profits, and Wages, Böhm-Bawerk has followed Menger's view of Capital (as above mentioned) rather than the narrower view of Jevons, who confines it exclusively to means of maintaining laborers. The relation of Labor, Wages, and Profits to Value is treated incidentally in the book on *Theories of Interest*. In the second paper on Value,

* "Theory of Subjective Value," *Jahrbücher*, xiii., N. F., p. 77, seq. See, for Dietzel's review, *Jahrbücher*, xi. pp. 161, 162.

† Wieser, pp. 113, 114; Mill, Book II. chap. xvi. § 5. Cf. what is said of Von Thünen's doctrine of Rent by Böhm-Bawerk, *Jahrbücher*, xiii. p. 505.

we are expressly told * that, in the analysis there given, abstraction has been made of labor, tools, and industrial processes. The case, in fact, has been presented abstractly or under simplified conditions; and, if we are to see the whole truth about Objective Value in Exchange, we must recur to the views expressed by the author in the larger work,† where we are told that the amount and duration of the capital advanced (as distinguished from the labor bestowed) in production prevent value from any exact coincidence with cost in any case whatsoever. Ricardo's qualifications of his "labor theory" are described as of undoubted truth and importance. Ricardo rightly saw that the proportions in which fixed and circulating capital enter into cost will seriously affect value in exchange. Now, it would strengthen the position of Professor Böhm-Bawerk and his colleagues very considerably if he could explain, not critically, but positively, the precise effect of these and other modifications on his own theory of value in exchange. We should like to know, for example, what the value of labor is, when considered as a question of the objective value of services, which our author expressly allows to be "goods," ‡ and therefore to be constituents in a complementary group of means of production. Does cost in wages play the same secondary part in objective value in exchange as cost in material goods? Would he subscribe to the doctrine of Jevons and Walker,—that wages are a residuum remaining after deduction of certain fixed elements, and depending essentially, therefore, on the amount of the produce? Would he regard profits as a fixed element at all, or (when distinguished from interest and "wages of superintendence") as entering into cost at all?

* *Jahrbücher*, xiii. p. 538, n. Cf. above, p. 68.

† *Kapital und Kapitalzins*, i. pp. 404-407.

‡ *Rechte und Verhältnisse vom Standpunkte der volkswirtschaftlichen Güterlehre*. 8vo. pp. 158. Innsbruck, 1881. See pp. 31, 57, 61.

The only writer of the school who has gone at any length into the above difficulties is Professor Emil Sax, of Prague, whose book on the economics of the State* includes an account of general economic principles. His views, in the main, are those of Böhm-Bawerk; but he will not allow that "services" are goods, or that labor is a service. When we say that "wages" are paid, we mean (according to Sax) simply that the capitalist purchases the workman's part of the product while the product is still a-making.† Labor is not a commodity; neither are wages "a recompense for the services of the workman." They are "the price of the workman's share of the commodity produced; it is his own product that constitutes his wages." Contract-wages depend on a calculation (made in advance) of the probable price of the product. "Cost of production" means the value of the total of capitalized goods expended in the production, as compared with the value of the product itself when finished. Without value (objective market value in exchange) there would be no trustworthy means of comparing present sacrifice and future return, or (if you like) past sacrifice and present return.‡ The employer, therefore, thinks entirely of the market price which he is likely to get for his finished article. The subjective value to himself of the said article does not come into the calculation; and hence it is that, roughly speaking, like work has like wages. It is otherwise with "services,"—e.g., of professional men,—where the subjective value to the person served is almost the ruling element in the price, and the payments are therefore very various.§ There, too, the payments are made by the served to the

* *Grundlegung der theoretischen Staatswirtschaft*, Vienna, 1887, which should be read in conjunction with the author's *Wesen und Aufgaben der Nationalökonomik*, 1884. For the general drift, see *Quarterly Journal of Economics*, July, 1887, p. 504.

† *Staatswirtschaft*, p. 230, note; cf. 242, 247, 322, 333.

‡ *Ibid.*, pp. 328, 330.

§ *Ibid.*, 242.

server, in goods made by the labor of the served or of his workmen; but, in hired labor for wages, the worker really receives not another's, but his own product, in the garb of its price.*

The relation of employer and employed is due to the institution of property, enabling me as it does to turn even the objects of immediate consumption, such as food, into means of procuring new goods: it embraces, in this way, "Acquisition" by means of the production of others, in addition to "Production" of my own. There are persons, for example, who want the food, but have no goods at the moment to give for it in exchange. Accordingly, I give them the food on condition that at some future time they shall make and hand over to me other goods for the satisfaction of my future wants. Self-interest demands that the amount of the required future equivalent shall be at least great enough to balance the comparatively greater (subjective) value of the food, as a present, in contrast with a future, means of satisfaction. Capital, therefore, besides becoming the means of production, may without losing its nature be devoted to the present satisfaction of present wants; that is, the present wants of others, who will then produce for my future benefit. "Means of production" should, strictly speaking, apply only to the capital laid out otherwise than in wages; but the extension of the phrase to the latter case is justifiable, for, if I get two sacks of corn a year for every one sack that I have given in wages, it is just as if I had myself used one for seed and reaped two at the harvest. As a rule, the workmen having little or no property are obliged to purchase the means of living by selling me in advance their share of the product. Their dependent situation is due, like payment of interest on capital, to the existence of private property.†

Professor Sax does not enter into the further details of

* *Staatswirtschaft*, 246, 247, note; cf. 242.

† *Ibid.*, pp. 322, 323.

distribution. He refers (in the manner of ordinary economists) to the competition of workmen with each other and to their standard of living as affecting the amount of their share in the product, and (in the manner of the socialism which he disclaims) to "the necessary labor" as an item in the calculations about any production.* But, like his leader Menger, he bids us look for further light to the forthcoming work of Böhm-Bawerk. The Innsbrück Professor is therefore at the present moment the foremost champion of the Austrian School of economics. To procure a favorable hearing, the school must apply its principles without reserve to the problems of distribution as they meet us in modern countries. This is one of the services for which we look to the long promised second volume on *Theories of Interest*.

JAMES BONAR.

* *Staatswirtschaft*, pp. 334, 335.

SOME PRECEDENTS FOLLOWED BY ALEXANDER HAMILTON.

THE system of finance established under Alexander Hamilton's administration of the Treasury of the United States has been represented as a slavish imitation of the English system or as an astonishing piece of original invention, according to the political leanings of the critic. In the following pages, the present writer proposes to consider the apparent origin of some parts of Hamilton's work, and incidentally to observe the light which is thus thrown upon these conflicting allegations of imitation and originality.

It is worth while to remark at the start that, under the early practice of our government, the Secretary of the Treasury occupied a position more nearly like that of an English Chancellor of the Exchequer than the present spirit of Congress would allow. The arrangements for securing his responsibility* were defective; but the responsibility itself, not only for administration, but for guiding the course of legislation, was recognized. The early communications of the Secretary to Congress often presented something like a budget, with a statement of the measures necessary for its working, and any new proposition became a government measure. The method began almost from the first to show its incompatibility with the thorough separation of legislative and executive

* Madison stated the nature of the responsibility as follows: "There will be responsibility in point of reputation, at least a responsibility to the public opinion with respect to his abilities; and supposing there is no personal responsibility, yet we know that men of talents and ability take as much care for the preservation of their reputation as any other species of property of which they are possessed." *Annals of Congress*, June 25, 1789.

functions aimed at in many of our arrangements; but, nevertheless, it made the financial system with which the government set out substantially Hamilton's system, as Congress expected and intended.

The purpose of Congress to throw upon the Secretary the burden of shaping the financial course of the government appears in the first steps taken on the subject of public credit. The act establishing the Treasury Department became a law on the 2d of September, 1789; and the nomination of Hamilton as Secretary went to the Senate on the 11th.* The demand for action "for the revival of public credit and the advancement of the national honor" had already been brought before the House by the petition of public creditors living in Pennsylvania;† and their petition, on the day when the Treasury bill became a law, was referred to a committee, consisting of Madison, Vining, and Boudinot. This committee contented itself with recommending a mere declaratory resolution that provision for the national creditors was necessary, and that the subject should be considered at the next session. When this report came before the House, however, on the 21st of September, a resolution was added and adopted, directing the Secretary of the Treasury to prepare a plan and report it to the House "at its next meeting." That this addition was made as the result of some consultation and settled policy is made probable by the adoption at the same time of a new resolution, directing the Secretary to apply to the executives of the several States for statements of their public debts and the amount of securities of the United States held by them, and to

*As early as May 27, Madison thought that, when the department should be established, the Secretary would be Jay or Hamilton, and that "the latter is, perhaps, best qualified for that species of business"; and June 30 he wrote that "Hamilton is most talked of." *Letters and Writings of Madison*, i. 472, 484.

†See *Annals of Congress*, August 28, 1789. The majority of these petitioners joined the next year in a remonstrance against the funding act. *American State Papers, Finance*, i. 76.

report the information to the House at the next session, plainly contemplating the possible assumption of State debts as a part of the plan of finance to be prepared. Without entering upon this vexed subject, however, it is enough now to point out the specific demand thus made upon Hamilton for a comprehensive scheme, just ten days after his appointment as Secretary. This was the contemporaneous interpretation of the clause in the Treasury act, which declares it to be "the duty of the Secretary of the Treasury to digest and prepare plans for the improvement and management of the revenue and for the support of the public credit."

When Hamilton, in accordance with this resolution, took up the problem of creating public credit, with all that such creation implied, he was barely thirty-two years old. He cannot be said to have had any special training for finance. He had been a reader on economic and financial subjects, had been an interested observer of financial measures, had taken some share in financial discussion, and had undergone the rapid educational process to which practical politics always subject the statesman. In his case, with his marked natural capacity and his good equipment of learning, this process had no doubt carried him far; but his experience had never reached the actual management of affairs on a large scale, as scales were measured in those days, nor the shaping of important financial legislation. He took up his problem, then, as a public man often must, relying upon his general training, observation, and judgment to lead him to a safe conclusion. It appears certain that he relied upon no adviser better versed than himself in practical affairs. He appears to have made a few inquiries of a general kind, not suggestive of his own purposes;* but there is a strong probability that his own mind was made up early as to some

*For example, see his letter to Madison, October 12, 1789, in *Hamilton's Life of Alexander Hamilton*, iv. 60.

leading features of his scheme, and that the friends finally taken into his confidence were not invited to share the responsibility of devising and deciding.*

It is a strong proof of the sobriety of Hamilton's judgment that, in determining his course under these circumstances, he sought for the most part to adapt to his purpose methods and agencies which had been tested by experience; for that is the great characteristic of his Reports on Public Credit and on a National Bank. There is little of the effort to invent or to work out theories leading to some novel expedient, by which an ambitious man so often seeks to exhibit his originality of device and improve his chance for fame. On the contrary, Hamilton seldom shows a disposition to go beyond the range of already tried expedients, except when required to do so by the conditions of his task. His fondness for disquisition perhaps, in a measure, justifies Mr. Adams's reference to his published documents as "essays which, under the name of reports, instilled much sound knowledge, besides some that was not so sound, into the minds of legislature and people."† He had moreover great fertility in ingenious intricacies and fondness for them, as was shown in several of his later and subordinate financial propositions. But, in laying down his general plan for a financial system, he appears to have held his natural tendency in check for the most part, and to have acted with a consciousness that the matter in hand was too grave and its relations too comprehensive to allow him to travel freely beyond the line of tried and known expedients.

* It is to be noticed that Wolcott, although in the Treasury, writes to his father November 3, 1789, "What arrangements are in contemplation with respect to the public debt, I have not been able to learn"; and as late as January 10, 1790, when Hamilton's plan was waiting to be presented to the House, Wolcott seems not to have been well informed as to the rate of interest to be proposed. Gibbs, *Administrations of Washington and Adams*, i, 23, 35.

† Henry Adams, *Life of Albert Gallatin*, 268.

And this explains his steady reliance upon the results of English experience. At that day, the statesman who looked for example to guide him in finance could hardly find it anywhere except in English or Dutch methods. France, after a long course of folly, had declared her bankruptcy in the year in which Hamilton's administration began. Spain could give no lessons except in the squandering of great opportunities and resources. Russia and Austria were both struggling with inconvertible paper and financial discredit and distress. The smaller states of Germany and Italy neither had important results to show nor were much known. And, of the two most familiar and most instructive cases, there can be no doubt that the experience of Holland was in most respects less likely to be applicable to the conditions of the United States than that of England. Unless then the financial organizer were resolved to disregard the lessons to be learned from foreign finance, he must of necessity draw those lessons chiefly from English practice. What Hamilton's favorite study would have been if France had been financially as fortunate as England, we need not inquire. France had not been thus fortunate, and even an Anglophobist could have looked in but one direction under the circumstances.

The features of Hamilton's scheme which we may advantageously compare therefore with the English precedents are his scheme for funding the debt in order to determine and moderate its immediate burden, his plan for a sinking fund, and the charter of the first Bank of the United States. These measures stand together, as those by which the public obligations were to be defined and met, and national and private interests were to be united for mutual support. The assumption of the State debts and the settlement of accounts with the several States also held an important place in the system, but the considerations involved were so special that these measures do not fall within the range of our inquiry. The system of credit

also rested upon the hope of a sufficient provision of revenue; but this Hamilton sought wherever he could find it, and under such limitations in the choice of his measures as made their origin a matter of little significance.

Taking up first in order the plan for funding the domestic debt, proposed by Hamilton in the *Report on Public Credit* of January 9, 1790, we have the measure which was declared to be devised for the purpose of mystifying the public and establishing a perpetual debt in imitation of what was understood to be the English policy. Premising that the Secretary assumed as probable that the interest of money in the United States "will, in five years, fall to five per cent., and in twenty to four," he proposed to fund the heterogeneous mass of securities and claims, which made up the domestic debt, as follows:—

First.— That for every hundred dollars subscribed, payable in the debt (as well interest as principal), the subscriber be entitled, at his option, either

[1] To have two-thirds funded at an annuity or yearly interest of six per cent., redeemable at the pleasure of the government by payment of the principal, and to receive the other third in lands in the Western Territory, at the rate of twenty cents per acre; or,

[2] To have the whole sum funded at an annuity or yearly interest of four per cent., irredeemable by any payment exceeding five dollars per annum, on account both of principal and interest, and to receive, as a compensation for the reduction of interest, fifteen dollars and eighty cents, payable in lands, as in the preceding case; or,

[3] To have sixty-six dollars and two-thirds of a dollar funded immediately at an annuity or yearly interest of six per cent., irredeemable by any payment exceeding four dollars and two-thirds of a dollar per annum, on account both of principal and interest, and to have, at the end of ten years, twenty-six dollars and eighty-eight cents funded at the like interest and rate of redemption; or,

[4] To have an annuity, for the remainder of life, upon the contingency of living to a given age, not less distant than ten years, computing interest at four per cent.; or,

[5] To have an annuity for the remainder of life, upon the contingency of the survivorship of the younger of two persons, computing interest in this case also at four per cent.

In addition to the foregoing loan, payable wholly in the debt, the Secretary would propose that one should be opened for ten millions of dollars on the following plan :

[6] That, for every hundred dollars subscribed, payable one-half in specie and the other half in debt (as well principal as interest), the subscriber be entitled to an annuity or yearly interest of five per cent., irredeemable by any payment exceeding six dollars per annum, on account both of principal and interest.*

No doubt the appearance of great complication is given to this scheme by the ingenious arrangement for leaving to the creditor his choice between several methods of funding, equivalent in value, but having different attractions for the investor. With a domestic money market as yet untried and with public credit still to be created, it may well have appeared dangerous to Hamilton at the end of 1789 to stake his success upon the possible popularity of any single form of investment. Still there can be no doubt that Congress judged wisely in rejecting this part of his scheme and in adopting a method of funding based on his third proposition.† The bolder course of proposing uniform terms of exchange to all the creditors proved to be free from the risk which Hamilton sought to avoid, the form of securities adopted proved to be satisfactory to investors, and the number of classes of new securities to be created was somewhat reduced. The proposition as given above remains a striking instance of Hamilton's chief foible as a financier,—his fondness for ingenious and nicely calculated expedients, sometimes admirable as mathematical *tours de force*, but elaborated beyond the real needs of the occasion.

Taking the first three of Hamilton's propositions, there is little in them to remind us strongly of the English precedents, except the use which is made of variety in the terms of redemption. The English legislation had already made the three per cent. consols and the reduced

* *American State Papers, Finance*, i. 20.

† *Senate Journal*, July 16, 1790.

three per cents. redeemable at par upon a year's notice. The four per cents. had been made irredeemable for ten years, and the fives for thirty. As a refinement upon this variation in time, Hamilton fixed a limit to the rate of redemption, guaranteeing the creditor against payment except by small instalments, instead of securing him against payment for a definite time. This limit upon redemption Hamilton used to increase the weight of his offers, as English financiers had used the limit of years; and Congress adopted it for the first and last time in the Funding Act of 1790,* when they gave the creditor, (1) for his principal two-thirds in six per cents. bearing present interest, and one-third in sixes not bearing interest until 1801, neither series being redeemable except by payments limited to eight per cent. for principal and interest in any one year, and (2) for his interest three per cents. redeemable at pleasure.

Whether Hamilton adopted from any quarter, or indeed maintained at all, a policy of permanent public debt, is a question which it is convenient to postpone for the present. So far as the terms of redemption proposed by him bear upon this point, however, it may be said here that his first proposition was for a security perpetual in the sense in which the larger part of the English funded debt was perpetual, having no fixed time for maturity, but redeemable whenever the government might find redemption convenient,—temporary or perpetual therefore according to the financial strength of the debtor. Of the securities redeemable at a limited rate, described in his second and third propositions, his four per cents. had the longest life secured to them; and these, if redeemed by a series of annual payments of five per cent. for principal and interest, would last for forty-one years from the beginning of the series, calculating the interest at four per cent. for the whole period.

* Act of August 4, 1790, *Statutes at Large*, i. 138.

When we come, however, to Hamilton's fourth and fifth propositions, we have plainly an expedient drawn from the life annuity system, which the English government had used as a method of borrowing at intervals from the time of William III. and which the Dutch government had practised still earlier. Here, again, Congress acted wisely in avoiding a plan better adapted to the habits and wants of an old community than to those of a country just emerging from colonial and frontier life; and the proposition stands as an additional proof of the tentative character of Hamilton's early propositions and the difficulty which he found in fixing his judgment as to the nature and demands of the coming money market, on which the fate of his effort to establish public credit must depend.

The least creditable of Hamilton's propositions is that in which, "as an auxiliary expedient," he proposed a loan on the plan of a tontine, with the right of survivorship among those entitled to the annual payments:—

To consist of six classes, composed respectively of persons of the following ages:

First class, of those of 20 years and under.

Second class, of those above 20, and not exceeding 30.

Third class, of those above 30, and not exceeding 40.

Fourth class, of those above 40, and not exceeding 50.

Fifth class, of those above 50, and not exceeding 60.

Sixth class, of those above 60.

Each share to be two hundred dollars; the number of shares in each class to be indefinite. Persons to be at liberty to subscribe on their own lives, or on those of others nominated by them.

The annuity upon a share in the first class, to be	\$8.40
Upon a share in the second,	8.65
Upon a share in the third,	9.00
Upon a share in the fourth,	9.65
Upon a share in the fifth,	10.70
Upon a share in the sixth,	12.80

The annuities of those who die to be equally divided among the survivors, until four-fifths shall be dead, when the principle of sur-

vivorship shall cease, and each annuitant thenceforth enjoy his dividend as a several annuity during the life upon which it shall depend.*

No action was taken by Congress upon this ill-advised scheme; but it is important to observe that its details appear to have been adjusted upon the plan of the English tontine of 1789, which had been brought out by Mr. Pitt a few months before the date of Hamilton's report.† The classification of subscribers is the same in the two, differing from either of the other English tontines and from the Irish and French as well.‡ In short, it appears that, in his uncertainty as to the kind of investments which would prove acceptable in the United States, Hamilton here grasped at the freshest expedient brought to him by his foreign advices, committing himself to a proposition which shows little of the business-like calculation found in most of his recommendations to Congress.

It was, no doubt, a common belief among Hamilton's opponents that, in shaping these propositions, he had devised a scheme which threatened the country with a perpetual debt. This, it was charged, was the natural result of a weak deference to English precedent and of political theories of English origin, which looked to the strengthening of the central government by all possible influences, whether pure or mercenary.§ That the con-

* *State Papers, Finance*, i. 21.

† On June 10, 1789. See *Parliamentary History*, xxviii. 161.

‡ The English tontine of 1789 was under the act of 29 George III., c. 41. A payment appears to have been made to one survivor in the fiscal year 1887-88, according to *Finance Accounts* (in Parl. Doc., 1888), p. 42.

The annuities proposed by Hamilton were somewhat higher for classes four, five, and six than those in the English scheme. This change was probably made because the terms of the English tontine were found not to be sufficiently attractive, so that the subscription was not filled. See for this and other English and Irish tontines *Report on Public Income and Expenditure* (Parl. Doc., 1869), ii. 571; for the French cases, Leroy-Beaulieu, *Science des Finances*, ii. 288 [1st ed.].

§ Jefferson, in his letter to Washington, September 9, 1792, says that Hamilton "wishes it [the debt] never to be paid, but always to be a thing wherewith to corrupt and manage the legislature." Jefferson's *Works*, iii. 464.

centration of debt and of revenue under federal authority would give instant support to the general policy of Hamilton and his party there was no pretence of denying, and it was perhaps natural that the opposition should believe that a debt which was used to strengthen the government at the outset would be treated as one of its permanent buttresses. The magnitude of the funding operation tended to confirm this idea. That Hamilton's opponents had no definite counter-proposition * appears to have been due in great measure to the belief sometimes expressed, and sometimes tacitly operative, that the debt weighing upon the general and State governments together was too great to be dealt with. To fund the debts of the Confederation at their face, without any attempt at scaling them down, and to assume a great mass of debts incurred by the States for the common defence, was to bind a formidable burden upon a government which was then collecting an independent revenue for the first time.† What chance of ultimate redemption can there be, to what else than a permanent and probably increasing national debt can such a scheme be expected to lead? was the anxious inquiry of men whom we have no right to charge with mere political hostility to Hamilton or with indifference to the national

And twenty-five years later, writing the introduction to his "Anas," he says in a famous passage that Hamilton's financial system "had two objects: 1st, as a puzzle, to exclude popular understanding and inquiry; 2nd, as a machine for the corruption of the legislature." *Ibid.*, ix. 91.

* As an example of the suggestions made by individuals may be cited Macley's advice, to establish a revenue sufficient "to discharge a reasonable interest, proportionate to the market price of the public debt, until the whole is extinguished by the western sales." *Debates in the First Senate*, p. 259. Macley's idea of "a reasonable interest" appears, from p. 171, to have been three per cent.

† Gallatin, in his *Sketch of the Finances* (1796), treats the ability of the government to carry this weight as something still to be proved. The objections to the assumption of State debts, he says, rest chiefly on the increase of the general debt and the difficulty of commanding all the resources of the country. "Give the Union that command, prove that its ability of paying the principal of the debt is not impaired by having assumed the State debts, and the measure will stand almost justified." *Writings of Gallatin*, iii. 165.

honor. A few years settled all such questions. The changed relations of the whole commercial world brought such an increase of national wealth as no man could have foreseen in 1790; and, by the irony of fate, it was Hamilton's opponents who reaped the benefit.

Hamilton's answer to all such apprehensions and the effective justification of his policy are to be found in his habitually sanguine estimate of what might be expected from the growth of the country. In 1781, he wrote to Morris that, if the United States should succeed in the war, their population would double in thirty years, and they would be out of debt in twenty.* In his *Report on Public Credit*, he thought that no country would be able to borrow from foreigners upon better terms than the United States, "because none can perhaps afford so good security."† He made his calculations, as we have seen, on an early fall in the rate of interest to be paid by the government. And he wished to hasten the rise of the national securities which he foresaw, in order that, if they should pass into the hands of foreigners, it might be for full value.‡ His optimism was, after all, the truest wisdom; and it explains and justifies the boldness with which he fixed the scale of his funding system. In his view, the debt which was to be funded, so far from being a perpetual burden, would fall easily within the resources of the rising nation; and, as it turned out, a more confident policy still might have succeeded.

The legislation which he advised or procured was strictly consistent with this expectation of future growth. Threatening as his propositions appeared to his opponents, few men would now dispute the statement that he undertook to cast the debt in such form as to keep its redemption fairly within the control of the government, making the securities redeemable either at pleasure or at such

* *Works* (Lodge's edition), iii. 124.

† *State Papers, Finance*, i. 20.

‡ *Ibid.*, 25.

a rate as might be supposed to correspond to the ability of a prosperous country. A quarter of a century ago, the promise of a sinking fund of one per cent. per annum appeared to Congress and to the public to be sufficient.* Less than twenty years ago, a large part of the national debt was made irredeemable for thirty years; and a period even longer was favored by men who were under no suspicion of favoring perpetual debt. With a scheme far removed then from perpetuity, as judged by recent standards, Hamilton undertook also to provide the machinery for carrying on systematic redemption even before the resources needed for the purpose could be counted on with certainty. So far, then, as the terms of his legislation are concerned, or those of the measures proposed by him, but not accepted by Congress, the charges made by his opponents appear to be without real foundation.

It must be admitted, however, that Hamilton, when urging the funding of the debt, sometimes used language which might well expose him to the charge of desiring its permanence and the suspicion of aiming at its establishment on something like the English model. He saw plainly that the revival of industry could only be accomplished by the aid of a sound mercantile credit, and that for the growth of this the establishment and regular operation of public credit were necessary. He saw the advantage which must accrue to the community when the resources of individuals locked up in claims upon the government should become mobile, by being converted into negotiable securities having a recognized standing in the market. And he held the opinion, often expressed since his time, that under some conditions a diffused domestic debt may be a bond of union. In urging his plans, then, he set forth in strong terms these advantages to be gained from the funding system. He sometimes fell little short of declaring a funded debt to be a real increase of capital, although he

*The operation of the sinking-fund provision of 1862 is of course much slackened by the construction which calls for one per cent., not of the original debt, but of the balance remaining unpaid at the beginning of the fiscal year.

did in fact make the distinction between an absolute increase of capital — which, he says, a funded debt is not — and a tendency to increase real wealth by increasing activity.* In his letter to Morris in 1781, he had declared that “a national debt, if it is not excessive, will be to us a national blessing. It will be a powerful cement of the Union.”† And in his *Report on Public Credit* he uses the same expression.‡ On this occasion, however, an explanation follows, which shows us his real thought. “Persuaded as the Secretary is that the proper funding of the present debt will render it a national blessing, yet he is so far from acceding to the position, in the latitude in which it is sometimes laid down, that public debts are public benefits, a position inviting to prodigality and liable to dangerous abuse, that he ardently wishes to see it incorporated, as a fundamental maxim, in the system of public credit of the United States, that the creation of debt should always be accompanied with the means of extinguishment.” This declaration, not standing alone, but repeated on other occasions,§ places his opinion as to national debts on consistent and easily defensible grounds. How far it fell in with the English practice of the day can best be seen when we consider the measures which Hamilton took to secure the regular payment of the debt of the United States, as funded by the act of 1790.

* On this subject, see his *Report on Manufactures*, in *State Papers, Finance*, i. 132.

† *Works* (Lodge's edition), iii. 124.

‡ *State Papers, Finance*, i. 24. Jefferson fastened upon this famous phrase, and in his letter to Epes, November 6, 1813, remarks that at “the time we were funding our national debts we heard much about ‘a public debt being a public blessing’; that the stock representing it was a creation of active capital for the aliment of commerce, manufactures, and agriculture. This paradox was well adapted to the minds of believers in dreams, and the gulls of that sort entered *bona fide* into it.” Jefferson's *Works*, vi. 239.

§ See especially his *Report on Public Credit* of January, 1795, *State Papers, Finance*, i. 331, 332.

Coming, then, to the second of Hamilton's leading measures, the establishment of a sinking fund for the national debt, we find an expedient unmistakably adopted from the English legislation,—so clearly derived from that source, in fact, that it would not call for discussion here if the meaning of the English precedent had not sometimes been lost sight of, and the key to Hamilton's action therefore lost. Without doubt, Hamilton in this matter followed Mr. Pitt.* What, then, was the scheme of Pitt? This question is not to be answered by referring to the English sinking fund, such as it became under later legislation in the years from which most of the current impressions about it date. We must go back to Mr. Pitt's sinking fund act of 1786, that being the legislation actually before Hamilton when he adopted his policy, and not yet modified even by Pitt's act of 1792, when the act of Congress of that year gave to our system its more formal organization.

Having a sufficient surplus of revenue in 1786, and, as was then believed, the prospect of a long peace, Mr. Pitt carried through Parliament an act † appropriating £250,000 quarterly to be expended in the purchase of government securities, and providing that the interest on securities purchased should also be so expended, all under the direction of a board of commissioners of high rank, the accumulation to continue until such time as the commissioners should hold securities yielding a clear income of four millions, beyond which point, distant by calculation about twenty-eight years, the interest on further purchases should be stopped, and its amount made available for

* A committee, consisting of Hamilton, Madison, and Fitzsimons, reported to Congress a resolution, December 16, 1782, declaring that any excess of funds granted by the States for the support of the debt should be inviolably appropriated as a sinking fund for the payment of the principal. *Journal of Congress*, viii. 38. Whether Hamilton was the author of the resolution or not, it does not conflict with the above statement of his indebtedness to Pitt.

† 26 George III., c. 31.

the relief of tax-payers. This sinking fund of one million per annum, it is to be observed, was by the terms of the act applicable to "the present public debt," of which the estimated capital was a little over £238,000,000. After all, however, Mr. Pitt looked to excess of income over expenditure as the means of payment; and the dazzling results of compound interest, often drawn from Dr. Price's popular calculations,* were only significant of the rate at which a given surplus might be made to act, and not indicative of any new power of extinguishment. Forced in 1792 to meet the possibility of extraordinary expenditures which might require fresh loans, Mr. Pitt carried through an additional act,† providing that every future loan should be accompanied by fresh taxation sufficient to meet its interest and to provide a sinking fund of one per cent. per annum for its capital, so that it might be extinguished in thirty or forty years,‡ according to the rate at which purchases could be made for that purpose. The act of 1792, however, merely carried out the plain intent of the act of 1786, that every funded debt should have the means provided for the steady extinguishment of its principal. The machinery of the acts, the establishment of a board of commissioners to apply the income of the fund for this purpose and to invest the interest

* Dr. Price's *Appeal to the Public on the Subject of the National Debt* was published in 1772, and had been followed by other pamphlets on the same subject before 1786, when Mr. Pitt accepted his authority. Dr. Price was favorably known in the United States; for in 1778 Congress invited him to come to this country and take charge of the finances. *Diplomatic Correspondence of the Revolution*, iii. 64. And, as by the edition of his *Observations on Reversionary Payments* in 1783 he had thrown new light on the subject of life annuities, it is a little singular that Hamilton passes him by in silence, using the old tables of Halley for his calculations on annuities. *American State Papers, Finance*, i. 32.

† 32 George III., c. 55. For a review of Mr. Pitt's legislation on this subject, see Mr. Huskisson's speech of March 25, 1813, *Hansard's Parliamentary Debates*, xxv. 287.

‡ Ricardo says "under the most unfavorable circumstances in forty-five years." *Works*, 524.

earned upon its accumulations, was a device for holding Parliament to the policy which it had undertaken; and the high rank of the commissioners was relied upon as a protection against legislative tampering. Under all the legislation down to 1802,* Mr. Pitt's sinking-fund system, stripped of its formalities, was as nearly as possible that which States and corporations not infrequently adopt in our own day. It was not illusory in its financial provisions, nor even in its dependence on the chances of war or peace. It did rest, however, upon a complete illusion as to the possibility of holding Parliament permanently to the system,—as to the possibility, that is, of binding the debtor by a compact made with himself.†

This political defect of Mr. Pitt's measure was not disclosed, however, during Hamilton's administration. Especially in the years 1789–1792, the English exchequer was working on a peace footing, and the sinking fund was therefore the last new thing in finance and full of promise, when Hamilton organized his financial system, and adopted, as a fundamental maxim, "that the creation of debt should always be accompanied with the means of extinguishment." The application of this maxim made

* 42 George III., c. 71.

† In Ricardo's hard-headed *Essay on the Funding System*, he declares that "it will not . . . admit of a doubt that, if Mr. Pitt's sinking fund, as established in 1792, had been always fairly acted upon,—if, for every loan, in addition to the war-taxes, the interest and a one per cent. sinking fund had been invariably supplied by annual taxes,—we should have made rapid progress in the extinction of debt." *Works*, 531. But "Mr. Pitt flattered himself most strangely. . . . With the knowledge of Parliament which he had, it is surprising that he should have relied so firmly on the resistance which the House of Commons would offer to any plan of ministers for violating the sinking fund." *Ibid.*, 543. In its actual operation under later legislation, Ricardo thought the sinking fund had increased debt rather than diminished it, and so concludes "that no securities can be given by ministers that the sinking fund shall be faithfully devoted to the payment of debt, and without such securities we should be much better without such a fund." *Ibid.*, 545.

For Lord Stanhope's attempt to make the sinking fund a part of a fresh contract with the fund-holders, see the debate in the House of Lords, May 22, 1786. *Hansard*, xxvi. 17.

it essential that with the funding of the debt should be joined some plan for finally sinking the principal. In his *Report on Public Credit*, then, Hamilton proposed the establishment of a Board of Commissioners, composed, like Pitt's, of high officers of state,* in whom should be vested the control of a fund, to be applied to the purchase or payment of debt, and to continue so vested until the whole of the debt should be discharged; and he also proposed the contraction of a new loan by the commissioners, its proceeds to be applicable chiefly to the payment of matured foreign debt and to the purchase of public securities below par, it being, in his opinion, an important object both to raise the value of the public stock in the market and to secure for the government the profits of such a reinvestment. Waiving the proposition for a new loan and its application, it is clear that Hamilton had in mind the establishment of an organized sinking fund. The embarrassment was in finding the means for feeding it, in the untried resources of the new government. He proposed to devote for this purpose the net produce of the post-office, to an amount not exceeding one million dollars, to be used in purchases, and so to serve as a nucleus for a growing fund. Congress, however, besides a general appropriation of the proceeds of Western lands for sinking the existing debts of the United States,† preferred to use for this purpose the surplus of revenue which might remain at the end of the year 1790, owing its existence to the funding of interest on the domestic debt of the

* Pitt's commissioners, under the act of 1786, were the Speaker of the House of Commons, the Chancellor of the Exchequer, the Master of the Rolls, the Accountant-General of the Court of Chancery, the Governor and the Deputy Governor of the Bank of England. Hamilton proposed as commissioners the President of the Senate, the Speaker of the House of Representatives, the Chief Justice, the Secretary of the Treasury, and the Attorney-General. Congress, by the act of August 12, 1790, § 2, added the Secretary of State, and struck out the Speaker of the House. *Statutes at Large*, i. 186.

† Act of August 4, 1790, § 22, *Statutes at Large*, i. 144.

United States to that date.* This appropriation was not perfected by any provision for the investment of the interest accruing on stock purchased by the commissioners, so that the act of 1790 for the reduction of the public debt went no farther than the mere establishment of a commission, not provided with any permanent resource whatever.† Hence the necessity for the recommendations made by Hamilton in his report of January 23, 1792, when, evidently in pursuance of his original conception, he advised that the interest on so much debt as might at any time have been purchased or paid by the commissioners should itself be appropriated for further payments or purchases. "It will deserve the consideration of the legislature," he added, "whether this fund ought not to be so vested as to acquire the nature and quality of a *proprietary* trust, incapable of being diverted without a violation of the principles and sanctions of property."‡ The act which carried out this recommendation as to the investment of interest accruing on previous purchases,§ although it does not use the term "sinking fund," in fact created such a fund for the then existing debt of the United States, on precisely the model of Pitt's sinking fund of 1786;|| and it must be added that, although the act of 1795 and Gallatin's act of 1802 differed from this model in form, they both in fact depended for their efficacy upon the same essential principle,—the compounding of interest by the investment of interest accruing on purchases already made.

* This surplus is reported, February 1, 1793, to have amounted to \$1,374,656. *State Papers, Finance*, i. 219.

† See act of August 12, 1790, *Statutes at Large*, i. 186.

‡ *State Papers, Finance*, i. 148.

§ Act of May 8, 1792, §§ 6, 7, *Statutes at Large*, i. 282.

|| The term "sinking fund" does not appear in the legislation until the act of March 3, 1795. The commissioners, however, in their journal, appear to have called themselves "Commissioners of the Sinking Fund of the United States" as early as August, 1791. *State Papers, Finance*, i. 235.

We have seen that Pitt in 1786 relied imprudently on the good resolutions of future Parliaments. Hamilton, by the peculiar form which had been given to a large part of the debt of the United States, was enabled to secure a much more solid safeguard for the uninterrupted working of his sinking fund. The six per cent. debt of the United States had been made reimbursable by payments not exceeding eight dollars upon a hundred in any one year for both principal and interest. The act of 1792 had contemplated the redemption of this stock when the whole annual income of the sinking fund should have reached two per cent. of the whole amount of the stock outstanding, and had declared the interest accruing on stock held in the sinking fund to be "appropriated and pledged firmly and inviolably" for this purpose. But, in his elaborate report of January, 1795,* Hamilton, dealing with larger revenues and brighter prospects, recommended an addition to the income of the sinking fund of so much of the proceeds of duties on imports and tonnage and of excise as would suffice to begin at once the redemption of the six per cents. bearing a present interest; and so much of the same revenues as, with the dividends accruing to the government from the United States Bank, would complete the payment for the bank stock and enable the redemption of the deferred six per cents. to begin in 1802. These recommendations, with others strengthening the organization of the sinking fund, were adopted by Congress. The appropriation of the revenues and resources in question was made permanent "until the whole of the present debt of the United States" should be reimbursed; "and the faith of the United States is hereby pledged that the income or funds aforesaid shall inviolably remain, and be appropriated and vested as aforesaid, to be applied to the said reimbursement and

* *State Papers, Finance*, i. 320.

redemption in manner aforesaid until the same shall be fully and completely effected."* Under these provisions, the redemption of the six per cent. stock began from January 1, 1795, by a series of payments fixed at eight per cent. per annum for principal and interest; and the stock was thus converted from an ordinary six per cent. of indefinite duration "into an annuity of eight per cent. per annum for a period of somewhat less than twenty-four years." Hamilton, in proposing this devotion of revenue to the redemption of debt, had intended to make the arrangement a contract with creditors, not to be violated. "The intent is to secure, by all the sanctions of which the subject is susceptible, an inviolable application of the fund, according to its destination. No expedients more powerful can be devised for this purpose than to clothe it with the character of *private property* and to engage absolutely the faith of the government by making the application of it to the object a *part of the contract with the creditors*."† Wolcott, Hamilton's successor, in his communication to the House, January 26, 1796,‡ observed that, "as the injunctions of the law upon the commissioners of the sinking fund are unconditional, and as permanent funds have been vested and appropriated, it is conceived that a successive reimbursement annually of the debt before mentioned has become an irrevocable stipulation with the creditors." Gallatin also recognized a pledge of the public faith in this action; and the change made in the sinking-fund legislation by his advice in 1802§ carefully saved all rights of creditors under previous acts, and

* Act of March 3, 1795, § 9, *Statutes at Large*, i. 435.

† *State Papers, Finance*, i. 332. A little farther on is a plain allusion to the diversion of the English sinking fund from its purpose prior to the act of 1786.

‡ *Ibid.*, 381.

§ Act of April 29, 1802, *Statutes at Large*, ii. 167. See especially §§ 3, 7.

he and his successors therefore continued, in war as well as in peace, the reimbursement undertaken in 1795.*

The idea, then, which Hamilton had in common with Pitt, and of which Pitt's action was the practical illustration, was to couple with every debt the means for its extinguishment,† to be applied to that purpose, whatever the condition of the Treasury otherwise. This could not prevent debt from accumulating, if expenditure was excessive; but it insured the good credit of the loans to which the plan was applied, and the system, if adhered to, tended to keep constantly before the legislature the necessity of having a stated revenue above ordinary expenses. The application of this idea to an existing debt Hamilton was able to provide for more effectively than Pitt, owing to the peculiar form given to the obligations of the United States; but in neither case did it prove to be possible to guarantee sufficient provision for such fresh expenditure or debt as the legislative will might insist upon. Less than justice has usually been done to the common sense of both of these great statesmen. There is nothing to show that either of them in adopting his system had any delusion as to the impossibility of paying debt without money, or any notion that compound interest could be made to supply the place of an adequate revenue or even to conceal its absence. Pitt, at the time when Hamilton took him as his example, had a surplus; and Hamilton

* For the rate at which stated payments of eight per cent. per annum extinguished the capital as well as defrayed the interest, see the table given by Wolcott, *State Papers, Finance*, i. 405; compare also the act of April 28, 1796, § 1. Inspection of the table shows the application of the compound interest. Obviously, Gallatin's system of devoting a fixed sum for interest and redemption of principal together, thus increasing the payment of principal as the sum required for interest diminished, was an application of the same method to the whole debt instead of a particular part thereof.

† Hamilton's *Report on Public Credit* of 1795 gives in a foot-note a significant reference to this provision of the English act of 1792. See *State Papers, Finance*, i. 331.

hoped for one, and upon good grounds. Apply this surplus effectively to present debt, and then contract no more without at the same time making provision from new sources for its interest and ultimate payment,—this was the system on which both proceeded. In the one case, the system was swamped by the gigantic wars of the French Revolution; in the other, it was made useless by the astonishing growth of national revenue; but in neither case, under the conditions and for the purposes of the time, was it the pure folly which it is often represented to have been.

The third point in Hamilton's financial system which we have to consider here is the establishment of a Bank of the United States. This measure was referred to by Hamilton in his *Report on Public Credit* as a part of his scheme not then fully matured, and was presented in form in December, 1790, under a resolution of the House adopted in the previous August, calling upon the Secretary to report "such further provisions as may, in his opinion, be necessary for establishing the public credit." In stating the advantages to be gained from a bank, he dwelt especially on the influence of a bank in quickening and virtually increasing the productive capital of the country and its utility as a financial agency of the government. It was then not far from eleven years since the probable date of his draft of a letter to Morris* urging the establishment of a Bank of the

*The draft of a letter to Morris, Hamilton's *Works* (Lodge's edition), iii. 61, is inserted in the earlier edition of the *Works*, i. 116, as if written between December, 1779, and March 17, 1780. A few important blanks are left in it to be filled later, and the manuscript is said to be otherwise defective. It seems not to have been referred to in subsequent correspondence between Hamilton and Morris, and may then perhaps be the draft of an intended letter, never sent, but interesting as showing the state of Hamilton's opinions on the subject when he was twenty-three years old. If sent, the letter was intended to be anonymous, as appears from its last paragraph.

United States by the Confederation, and not far from ten years since his letters to Duane, Sears, and again to Morris, discussing and enforcing a similar proposition. The claim of priority in the conception of a national bank, which has been rested on these letters, is hardly a valuable one. The letters were written at the moment when the continental paper had become practically worthless, and Congress was at its wits' end. The schemes proposed by Hamilton were perhaps no wilder than were offered by others, but he would have been slow in 1790 to recognize their affinity with the maturely deliberated proposition of that year. It is enough to say that the second and more carefully elaborated of the letters to Morris* proposes a bank, the stock of which, to the extent of at least one-third, might be paid for in landed security, the notes of 20s. and upwards to bear interest, and the places of redemption to be in the interior, making "applications for payment of bank-notes less convenient."† Among the advantages of the scheme, besides the loans to be made to Congress, was the familiar attraction of all land-bank schemes, that proprietors could have the use of their land and also the use of a cash representative of its value.‡

The earlier schemes, however, mark the length of time for which Hamilton's mind had been busied with the idea of securing financial relief from a great banking institution of some sort; § and his letters show his interest in the work-

* April 30, 1781, *Hamilton's Works* (Lodge's edition), iii. 82.

† *Ibid.*, p. 118.

‡ *Ibid.*, p. 107.

§ The constitution of the Bank of New York, adopted March 15, 1784, given by Domett, *History of the Bank of New York*, p. 11, was written by Hamilton, but contains little except the formal provisions necessary for determining the duties and responsibilities of officers, rights of stockholders, and other details incident to the organization of a moneyed institution. The act of incorporation (*Ibid.*, p. 122), passed March 21, 1791, contains, however, a series of provisions relating to the banking powers of the corporation, which follow closely even the phraseology of the act passed by Congress a month before, establishing the Bank of the United States.

ing of the great European banks. Of these there was but one which could be an available model. The French Caisse d'Escompte was embarrassed by its close connection with the government, hardly tried to conceal the real inconvertibility of its paper, and was fast approaching ruin. The Bank of Amsterdam, still in good credit, was organized upon a plan adapted only for an opulent community, rich in specie, and indifferent to the use of bank credit in its usual forms. There remained the Bank of England, a successful institution, strengthening private enterprise, aiding the government,* and regulating currency upon a sound basis. Without presenting this formally as an example,† he shaped his own proposition according to the lines of the Bank of England, with the changes which the circumstances of the United States required.

The primary question as to the connection of the government with the proposed bank is argued and settled by Hamilton in his report in accordance with the English precedent and directly against the other European cases. He concludes in favor of an institution in private hands and under private direction, and to be influenced as little as possible by public necessity. "The keen, steady, and, as it were, magnetic sense of their own interest as proprietors, in the direction of a bank, pointing invariably to its true pole, the prosperity of the institution, is the only security that can always be relied upon for a careful and prudent administration." No profit to be gained by the State from banking could in his mind be set against this advantage. The State might be an owner of stock,

* In 1781, Hamilton, writing to Morris, and referring to the Bank of England, says, "'Tis by this alone she [England] now menaces our independence." *Works* (Lodge's edition), iii. 101.

† The Bank of England is not mentioned in the *Report on a National Bank*, except in a passage near the beginning, where Hamilton says that public banks have successively obtained in Italy, Germany, Holland, England, and France, as well as in the United States. The omission appears to be studied.

though not of a principal part of it, and ought to exercise a supervision for the good of the community; but he admitted no real departure from the theory of the Bank of England as an essentially private establishment employed as a public agent. This independence of the executive he secured by forbidding loans of serious amount for the use of the government, unless specially authorized by law, as was done by the Bank of England charter until the passage of Mr. Pitt's act in 1793.* As for the holding of public securities as an investment of the capital of the bank, Hamilton was establishing his bank in the presence of a debt already contracted, instead of using it as a means of borrowing, as the Bank of England had been used. It was enough for his purpose, then, to allow three-fourths of the stock to be paid for by transfer of public securities, these to be held until the needs of the bank might require their sale.

It has been remarked already that for Hamilton's purposes a bank was needed of a different kind from the Bank of Amsterdam. A bank of discount, deposit, and issue was required for the transaction of general business, public and private. In the summary of his plan given in his report, Hamilton makes a brief statement as to the powers of the proposed bank as follows:—

VII. The company may sell or demise its lands and tenements, or may sell the whole or any part of the public debt, whereof its stock shall consist. but shall *trade* in nothing except bills of exchange, gold and silver bullion, or in the sale of goods pledged for money lent, nor shall take more than at the rate of six per centum per annum upon its loans or discounts.

The bill offered in the Senate was drawn by Hamilton and, with few changes, became a law, and we there find this important provision amplified in terms which may

*33 George III., c. 32. See McLeod, *Theory and Practice of Banking*, i. 445.

fairly be set side by side with a similar provision in the Bank of England Act of 1694.

[*Act of February 25, 1791.*]

The said corporation may sell any part of the public debt whereof its stock shall be composed, but shall not be at liberty to purchase any public debt whatsoever; nor shall directly or indirectly deal or trade in anything, except bills of exchange, gold or silver bullion, or in the sale of goods really and truly pledged for money lent and not redeemed in due time; or of goods which shall be the produce of its lands. Neither shall the said corporation take more than at the rate of six per centum per annum, for or upon its loans or discounts.

[*Act of 5 Will. and Mary, c. 20.*]

§ xxvii. [That the corporation shall not deal in Goods, Wares, or Merchandise.] § xxviii. Provided, That nothing herein contained shall in any ways be construed to hinder the said Corporation from dealing in Bills of Exchange, or in buying or selling Bullion, Gold or Silver, or in selling any Goods, Wares, or Merchandise whatsoever, which shall really and *bona fide* be left or deposited with the said Corporation for Money lent and advanced thereon, and which shall not be redeemed at the Time agreed on, or within three Months after, or from selling such Goods as shall or may be the Produce of Lands purchased by the said Corporation.

Other passages also might be cited to show that the framer of the act incorporating the Bank of the United States had the English acts open before him; but, after all, the important fact is that in both there was the same purpose of establishing a private company with general banking powers, to co-operate with the Treasury. The limits and safeguards thrown around the use of these powers were few in both cases, with differences mainly to be accounted for by differing conditions. In each, the redemption of notes in specie was required; and the amount of the issue was limited in the charter of the Bank of England by forbidding debts in excess of the capital, and in the charter of the Bank of the United States by forbidding the debts exclusive of deposits to exceed the

capital. The prohibition of investment in real estate was inserted by Hamilton,* and with good reason, considering the condition of the United States at that date.

Closing here the present examination of Hamilton's system, it must be added, in order to avoid misconception, that it is in the grouping of these measures so as to make a consistent scheme for the accomplishment of a definite purpose that we find Hamilton's best title to rank as a great financial statesman. He had the insight and cheerful resolution which enabled him to see and draw out the still latent strength of the new country, the knowledge of the world necessary for bringing together the best of tried expedients, and the breadth of conception required for shaping a system which should make growth rapid and burdens lighter, by the creation of public and private credit. No statesman could have a greater task set for him, and political science can hardly have in store any greater triumph than this application of the experience of other men and other nations. Details may be criticised, and yet as a whole his measures meet the real test of financial soundness, representing in their great features the best that could be done under the conditions then existing. And in this as in other parts of our political system his impress was lasting. "The results, legislative and administrative," says the biographer of his greatest successor, "were stupendous and can never be repeated. A government is organized once for all, and until that of the United States fairly goes to pieces no man can do more than alter or improve the work accomplished by Hamilton and his party."

CHARLES F. DUNBAR.

* Hamilton's letter to Church, March 10, 1784, condemns Chancellor Livingston's scheme of a land bank and shows that Hamilton had then outgrown the ideas expressed in his letter to Morris in 1781. See Hamilton's *Works* (J. C. Hamilton's edition), i. 414.

A NEW VIEW OF THE THEORY OF WAGES.

I.

LIKE many familiar words whose meanings seem perfectly clear and simple, the word "wages" has different significations, which are liable to be confused. It sometimes means the earnings of labor,—the remuneration, that is, which the laborer obtains as the result of his labor, and which is measured in the various commodities entering into his consumption. Again, it sometimes means the cost of labor to the employer,—that is to say, the price which he pays for labor in money as the representative of general value, money being the standard in which he estimates wages in common with his other expenditures and with his receipts. These two meanings of the word "wages" correspond to two different aspects of labor; for, in considering labor, we may attend principally either to the sacrifices involved in it or to the useful services which it renders. The laborer, in anticipation of the recompense to be received, submits to the sacrifice and undergoes the irksomeness implied in the word "labor." But the sacrifice and irksomeness of labor would secure it no market, and would be utterly insufficient to endow it with exchange value. On the other hand, the services of labor in affording direct gratifications or in producing useful commodities alone procure a sale for it; and these services are weighed by the purchaser in the same scale with the utility of material commodities or of the services which such commodities render.

By far the more interesting of the two aspects of the wages question is the problem of the laborer's remuneration, for that determines the welfare of the greater part of mankind. To this, the merely commercial question of

the price of labor is really subordinate. For the inquiries of political economy have for their ultimate object the gratification of human wants; and questions as to the mechanism by which this is attained are in reality merely subsidiary thereto.

For this reason, there is a natural eagerness to solve at once the question of remuneration by making it the direct object of inquiry. But, if we would attain any valuable and trustworthy results, we must not expect to reach our conclusions at a jump, but must travel cautiously step by step along the path of cause and effect, inquiring carefully as we go into the reasons why labor is bought and sold and into the conditions which must be fulfilled in order that its price may be in equilibrium. It is clear that the price can only be in equilibrium when the supply and the demand are equal, and that the rate of wages must be such as to make them equal. To inquire how wages do this—to examine, that is, more closely into the mechanism whereby the equation of supply and demand is realized—is the object of the present paper. And this is the only natural and right way to proceed in inquiring into the law of the price or value of anything whatever. If some writers have neglected or abandoned it in the case of labor, they have probably done so because they have been unable to see how it issued in any solution of the question. Should we succeed in finding a solution in this way, it is not likely that any one will cavil at the method we pursue.

If, after investigating the influence of price, we should find how supply and demand are made equal, it would then be in place to inquire more particularly into the other factors which join to constitute the supply and demand; but to do so would probably exceed the limits of a single paper.

There are but two ways in which the supply and the demand of anything can be made equal: one is by the

action of price upon supply, the other is by the action of price upon demand. Now, the supply of labor is in the main a question of population; and the influence of the price of labor upon the population only takes full effect after a long series of years,—not less, indeed, than an entire generation. Its laws have therefore usually been treated by economists in connection with the principle of population. But if moderate periods of time only are under consideration, the influence of price upon supply being so long delayed, and being also for that very reason deeply interwoven with other causes, we may disregard its effect. It is under this condition that economists have generally sought to lay down the law of wages; and in this course we shall follow them. The law thus sought is the law of what Ricardo called market wages as distinguished from natural wages, by which latter term he meant that remuneration which would just suffice, on his theory, to induce laborers to maintain population at its actual amount. Supply being treated as stationary, it follows that the equality of supply and demand, which is the condition of the equilibrium of price, can only be reached by the influence of price upon demand.

The condition of the problem as laid down above clearly indicates in what meanings we should use the words "labor" and "wages." We must use them in those meanings in which they influence the demand for labor. By the word "labor" we shall therefore mean the services which the laborer renders, because, as we have already seen, these alone give rise to a demand for labor. By the word "wages" we shall mean money wages, money being the commodity in which the employer compares the cost of wages with the cost of other things.

The problem of wages therefore, as I present it, is merely the problem of the price of labor.* But, when this prob-

*For the sake of clearness, I shall commonly use the expression "price of labor" instead of "wages." In so doing, I of course ignore the influence of

lem is solved, it will be an easy step to apply our conclusions to the solution of the intrinsically more important and interesting problem of the laborer's remuneration; for this latter is the resultant of the price of labor and of the price of those commodities which the laborer consumes, assuming always that the quality of labor is the same.

II.

Wages, or the price of labor, will be in equilibrium when the demand just equals the existing supply; and this will occur when it pays employers to hire the whole number of laborers who are seeking employment, and no more and no less.

People wish to hire or buy the services of labor for the very same reason that they wish to buy anything else,—simply because these services afford an immediate gratification or aid in producing material objects which do so. In other words, the hiring of labor, like the purchase of any commodity, is either for the purposes of productive industry or of unproductive expenditure.

In productive industry, every form of investment is open to the employer. He may lay out capital on buildings or machinery. He may expend it in improvements of the soil or in the purchase of beasts of burden or of other animals. He may keep little or much of it locked up in the form of materials or of money. All these things are embraced in what may be called auxiliary capital. On the other hand, the employer may use his capital to buy labor, either slave or free, according to the institutions and laws of the particular country. In all cases, he is governed by one and the same motive,—namely, the desire for gain; and, according to his expectations as to the comparative profit to be reaped, he turns capital into

changes in the value of money, as I may safely do in the limits set for this discussion, trusting to the reader's intelligence to make the necessary correction in any application he may make of my results.

one field or into another. He does not buy labor until he has compared the profit to be got by so doing with that obtainable by a different outlay. Upon his decision depends the demand for labor. If labor commands a high price, he economizes in its use and employs more auxiliary capital. If its price falls, he gradually increases his use of it and curtails his other expenditures. At every rise in price, some of its uses are abandoned and demand shrinks. Every fall in the price enlarges the field of employment and stimulates the demand.

What is here stated of labor is equally true of everything else; and not only is it true of each particular commodity, it is true also of auxiliary capital as a whole. The use of any tool increases as its cost declines, and *vice versa*; and in the same way the general use of auxiliary capital increases relatively to the use of labor, as the rate of interest or price of using capital falls. Where the interest on a given amount of capital is less than the price of such labor as would do the same work, auxiliary capital is used. Where the price of labor is less than such interest, labor is used. If a man can be hired to do a certain piece of work for one hundred and ten dollars, and if when interest is at six per cent. a machine can be hired for one hundred and twenty dollars that will do the same work, then, so long as the rate of interest remains at six per cent., labor will be employed; but if interest falls to five per cent., and the hire of the machine falls in consequence to one hundred dollars, then the machine will be employed. The dividing line between the use of capital and the use of labor varies with the rate of interest and with the price of labor; and in those intermediate cases which are close to this line, and in which advantage wavers between labor and capital without clearly deciding itself for either, the wages of such amount of labor and the interest of such amount of capital as are just able to do the same work or to supplant the one the other are equal,

and the prices paid in such cases for interest and for labor determine the prices paid for them in all their employments.*

The choice of the employer between using labor and using auxiliary capital to produce any given result depends upon their relative costs; and upon his choice depends the demand for each. Demand will only be at rest when it is impossible for the employer to change advantageously the allotment of his capital, between the use of labor and that of tools or beasts, instruments or materials, buildings or any of the manifold forms in which capital assists or supplements, saves or supplants labor.

Under the system of slavery,—slaves being capital just the same as beasts are,—it is clear that the employer must receive an equal return for the use of an equal amount of capital, whether in slaves or in horses, in ploughs or in lands. But the price of free labor is the same as the interest on the price of slaves (adding thereto, of course, the cost of maintaining them). The freedman has just the same ownership in his own labor as his former master had; and though it may not occur to him to estimate the value of the property he has acquired, and though his powers are no longer quoted at their capitalized value, this is simply because they are not sold in that form, but are rented out by him from day to day. The employer's purpose in buying or hiring them is, however, the same,—so to employ his means as to obtain the greatest returns for his outlay.

In unproductive expenditures there is the same rivalry between labor and capital as in productive industry. Consumers may prefer grand houses, sumptuous furniture, and

*It may be objected that, as capital is used to pay labor, therefore the substitution of auxiliary capital for labor in any employment, or *vice versa*, cannot affect the amount of capital used in that employment nor the rates of interest or of wages. But this objection would overlook the fact that the amount of capital necessary to supplant a given amount of labor is far greater than the amount needed to pay the wages of that labor. Indeed, it is the capitalized sum of which wages would equal the annual interest.

splendid equipages, or rich viands and costly wines, or the services of teachers or of musicians and actors, of soldiers, retainers, or menials; and, as the captain of industry aims to get the greatest product for the least cost, so the consumer aims to get the most gratifications for the least outlay, and is to no small degree guided in his selection by the comparative costs of the various forms of expenditure which offer themselves to him.

From what has been said, it appears that the demand for labor can only be equal to the supply when the price is such that the employer can gain no pecuniary advantage by substituting either labor or auxiliary capital the one for the other in any of their various uses. Whenever this condition of things exists, price is in equilibrium; for otherwise demand would either exceed or fall short of supply. At any higher price of labor, employers would hasten to substitute for it the use of tools or other forms of auxiliary capital in those operations where there had already been but little advantage in using labor; and demand for labor would therefore slacken and fall short of supply. At a lower price, employers would withdraw auxiliary capital from some of the operations where its advantages had been already small, and would buy labor instead; and demand would outrun supply. Thus the very aberrations of price from its normal rate set forces at work which in the end restore its equilibrium.

It is true that changes in other circumstances, that misinterpretations of the industrial position, or untoward struggles to raise or to lower price, do continually disturb the market. But it is not necessary that the equilibrium be ever exactly realized, or that it should prevail undisturbed. Water seeks its own level, but yet the sea is never quite smooth; and so, whatever fluctuations sweep over the wages market, price forever gravitates toward that figure at which no portion of capital devoted to the purchase of labor can be more profitably converted into

auxiliary capital, and no portion of auxiliary capital can be more profitably diverted to the purchase of labor, and it never in a state of perfect competition remains long remote from this level. This is, after all, but an application of Adam Smith's old maxim, that the profits of capital must be equal in each of its employments.

That the substitution of labor and auxiliary capital for each other may be induced by changes in the rates of interest and of wages is a truth which has commonly been overlooked by economists. Thornton, in the vehemence of his refutation of the wages-fund theory, went so far as to assert, and in this he obtained the adhesion of Mr. Mill, that in the case of labor "demand does not increase with cheapness" (p. 87, Thornton *On Labor*, 2d edition). Because labor is indispensable, it seemed to these distinguished economists that no part of it could be curtailed, and that no increased amount would be used, owing to change of price. Mill even proclaimed that expenditure in wages is limited only by the aggregate means of the employing class (deduction being only made of the amount required to maintain themselves and their families), which implies a state of industry in which tools are discarded, and where the completion of the product follows so rapidly as to dispense even with the necessity of carrying a stock of partly finished materials. (*Dissertations and Discussions*, iv. p. 44.)

Labor certainly is indispensable. Auxiliary capital cannot work unattended by labor; and we may add that in modern civilized industry labor seldom works unsupplemented by auxiliary capital. Many necessary things can only be done by labor, and many others can only be done by the use of natural agents or of auxiliary capital. Others still can be done equally well by the use of either of them. Of the vast number of processes which are carried on by machinery, the greater number perhaps could be executed as well by hand labor. Machinery is preferred simply be-

cause the cost of production is lessened by its use. Also, in many processes now executed by hand, machinery would be equally efficient; but it is not used, because it would involve a greater cost of production. In these cases, opportunities for labor or for auxiliary capital to supplant the one the other only occur when either the price of labor or the cost of using machinery changes. In some cases, a great change only will afford such opportunities: in other cases, a small change will suffice. But there are other cases in which the cost is equal, or very nearly equal, whether labor is employed or auxiliary capital. In such cases, the slightest change in the price of labor immediately affects the demand for it.*

The condition, therefore, upon which demand will equal supply is as follows: *The price of a given amount of labor is equal to the price which is paid for the use of such amount of auxiliary capital as can replace it in those operations where the two things may be indifferently employed with equal pecuniary advantage.* This we may call the law of wages.

To illustrate the working of this law, we may arrange all operations in a scale showing the relative cheapness of using labor and of using auxiliary capital in each case. The gradations in this scale will be as many as the minute degrees in which the relative cost of these two methods differs in the infinite variety of possible operations. Where the cost is just equal, labor and capital will be used indifferently. On either side of this point, that one of the two will be employed which is relatively the cheapest. Where it is cheaper to hire labor, labor will be used. Where it is cheaper to hire the use of auxiliary capital, auxiliary capital will be employed. In some operations there will be an advantage in the use of auxiliary capital which cannot be overcome; in some there will be a similar advantage in the

*Men substitute mechanical for muscular forces because they are cheaper. In the great majority of cases, the development of machinery is the escape from the dearness of labor. (J. E. T. Rogers's *Political Economy*, p. 128, 2d edition.)

use of labor. These advantages on both sides will gradually shade away until they disappear or merge in those operations where the same results can be had with equal profit to the employer, whether labor is used or some form of auxiliary capital.

And, if we suppose the gradations in the scale to be of infinitely minute amounts, it follows that at every price of labor there will be some occupations where the costs of using labor and of using capital are identical. And (always disregarding the effect of economic friction and of the dislike of change) it follows that, at whatever point this equality of costs exists, labor and auxiliary capital will there be employed indifferently; while on one side of it labor alone will be used and on the other side capital exclusively, but always at the same prices as where the cost is the same of using either.

Among all the occupations in which it would be possible to employ either labor or capital to produce the same result, a given amount of labor will at this point where the costs are equal supplant less capital than in any other occupation where labor is actually used instead of capital; and, similarly, a given amount of capital will at this point supplant less labor than anywhere else where capital is actually employed instead of labor. It is therefore a peculiarity of those occupations in which labor and capital can be used indifferently that in them a given amount of either, whether it be of labor or whether it be of capital, will supplant a less amount of the other than anywhere else, where it is actually and constantly employed.

In all other employments where capital is used, it has some decided economical advantage over labor; and, similarly, wherever else labor is used, it has some decided advantage over capital. Only in this common field do their relative advantages merge, which comes to saying that each is here at its least or final utility relatively to the other. And, as the price paid for the use of labor and

capital in each of their other employments is the same as it is here, we arrive at the conclusion that, just as the final utility of every commodity fixes its absolute price, so the relative final utility of labor and of capital fixes the relative prices paid for the use of them.

III.

To accurately compare the costs of employing labor and auxiliary capital requires that we include not only the prices paid directly for the use of each, but also all outlays of every kind incident to that use.

The hire, or price, of labor covers its whole cost, or all but a trifling part of it. The principal element of the cost of using capital is interest: interest alone is really paid as compensation for its use. But interest is by no means the only element of cost. In order to keep it intact and provide against sudden loss or gradual depreciation, there must be provided, in addition to interest, a fund for insurance and renewals, or wear and tear. These things vary greatly with the nature of the particular business; while interest, strictly speaking, does not so vary. And, besides insurance against loss by sudden destruction or by the dilapidation of gradual wear and tear, there must be an insurance provided against the possible depreciation in value arising out of the instability of business and its changing conditions. For, as capital assumes fixed and durable forms, it loses the valuable quality of convertibility, and can no longer be withdrawn from a declining business, but is liable to be robbed of its value by changes in trade or fashion, or by the exhaustion of natural resources which it was used to exploit, or by improvements in the methods of industry. All these risks and disadvantages demand for many of the permanent investments of capital an extra rate of what we may call business insurance, varying with the degree of the uncertainty and

dread of change. Labor is therefore often employed at a price far exceeding the ordinary interest on the amount of capital which could replace it. The owner of a silver mine for these reasons may sometimes wisely hesitate to erect labor-saving appliances, even at an annual saving of from thirty to fifty per cent. on their cost; while a prudent manufacturer will often pass by opportunities to save ten per cent., or even twenty per cent., on the cost of improvements which it is in his power to make. Thus the adoption of known improvements by existing establishments is often delayed by the expectation of still further inventions and discoveries. But in new enterprises undertakers strive to adopt every known or possible improvement; and each improvement that is made suggests the possibility of further ones. The rapid growth and the frequent installation of new plants are among the principal causes of the great superiority in many branches of American manufacturing practice as compared with European,—a superiority which goes far to overcome whatever advantages foreign manufacturers may possess in cheaper labor and in longer experience.

But the charges for insurance and for renewals, or wear and tear, are not strictly charges for the use of capital, but simply a provision to preserve its amount unimpaired. Excluding these charges from the cost of using capital, its interest remains as the compensation for its use and is equal in all its employments at the same time and place. The rate of interest varies only with changes in the degree of productiveness or in the relative distribution of the product between labor and capital.

Disregarding, therefore, all items of the cost of employing auxiliary capital except interest, the law of wages assumes this form: *The interest on capital and the price of labor, in all employments, are fixed by the rates paid for their use in those of their actual employments in which they are*

used indifferently and where, therefore, a given amount of either one of them is capable of supplanting the least amount of the other; and the same price is in all cases paid for the use of those amounts of each which can in such employments be substituted the one for the other.

Since the time of Ricardo, it has often been said that a rise of profits or of interest is only possible through a fall of wages. But the very first inference from the foregoing law is that high and low interest accompany high and low wages, and that the rates of interest and of wages rise and fall together. Observation confirms this inference. Whether we merely regard the temporary changes in business, or whether we consider the more or less permanent condition of things in different countries at the same time, or in the same country at different times, it is evident that the more general, at least, among the temporary fluctuations of wages and of interest commonly coincide, and that not infrequently the more permanent differences in the rate of interest are conjoined with like differences in the rate of wages.* So evident is it that interest and wages rise and fall together in the ordinary fluctuations of trade, and that almost *pari passu*, that, in order to secure the immediateness of this result and avoid conflict or friction in readjusting their rates, the price of labor is frequently regulated by a sliding scale, so that it shall respond automatically to changes in the state of business and of the price of the finished commodities which it helps produce.

It is evident that changes or differences in the produc-

*The following is from an article on the early career of W. E. Forster: "It is easy to see by the condition of things described . . . clear indications that the mischief lay elsewhere than in the inadequacy of the wage fund. . . . Not only the seventeen hundred thousand of unemployed people, but also millions of idle capital, were, as we have seen, going a-begging for employment. Bankers and brokers were reported as refusing to take fresh money, and charging one or one and a half per cent. for loans on the Stock Exchange, and two and a quarter and two and a half for the discount of bills. Capitalists dared not embark their capital in any fresh ventures." *Contemporary Review*, September, 1886, p. 317.

tiveness of industry cannot affect the rate of interchange of labor and auxiliary capital. And this is but saying that the changes in wages and interest which arise from this cause apply equally to both. But not every change in wages and interest is due to change in the productiveness of industry. Some changes arise from causes which alter the rate of interchange or relative utility of auxiliary capital and of labor, and affect wages and interest divergently. When this is the case, a shifting of the balance between labor and auxiliary capital ensues. In some employments where that one whose price is relatively depressed was already at the least disadvantage, it grows in demand under the influence of cheapness, and supplants to a greater or lesser degree the one whose price is relatively augmented, so that a readjustment of equilibrium is gradually attained upon a new level.

To complete the theory of wages, it is necessary to inquire into the nature and the effects both of those causes which affect wages and interest concurrently and of those which affect them divergently. But before proceeding to this task it is incumbent upon us to consider more carefully the exact significance of the law of wages, so far as we have already determined it. ✓

At the beginning of this paper, we recognized that the price of labor is not the same thing as the remuneration of labor. It is not therefore to be expected that we should be able to indicate at the present stage of the inquiry what the remuneration of labor — which is the real ultimate object of inquiry — actually is. But we might at least have hoped that the law of the price of labor which we have been at so much pains to establish would tell what the amount of that price is, measured in money. Unfortunately, the law of wages as above laid down not only fails to tell the amount of commodities obtained by the laborer, but it does not even tell what amount of money is actually

paid for labor. It indicates, and indicates only, the condition upon which the price is in equilibrium. But, as this condition requires that the wages paid for a certain amount of labor should be equal to the interest paid for the use of a certain amount of capital, it might seem to be a simple step to conclude from this the definite amount of money paid for wages. There are, however, two reasons why this does not follow. In the first place, our investigation does not show what amounts of labor and of capital are equally compensated; and even this knowledge would be useless unless we also knew the rate of interest on capital, and this we can never ascertain until we also ascertain the rate of wages. The rates of interest and of wages are mutually dependent, and neither can be definitely ascertained without at the same time ascertaining the other. Their laws are in reality but the two aspects of one and the same law,—that, namely, which we have heretofore laid down as the law of wages. A little observation will show that, while this law applies to wages, it applies conversely equally well to interest.

This may seem a negative and very empty result; but the knowledge which it gives as to the condition of equilibrium between interest and wages is of the utmost importance in itself, and also prepares us to enter with good hopes of success upon the further inquiry into the causes which engage equilibrium to settle at the exact point where it does rather than somewhere else.

IV.

The theory set forth in the preceding pages involves the assumption that in large numbers of operations the advantages of using labor and those of using auxiliary capital are not so widely separated as to preclude an active competition between those different methods of obtaining the same results. In some cases, both methods are actually and indifferently used under similar circumstances, and

their relative cheapness remains in suspense.* Such cases are of course limited in number and in extent. In the great majority of cases, there must be a difference between the cost of using labor and that of using auxiliary capital sufficient to be clearly recognized. And, however small this difference may be, it will under the same conditions always exclude the use of the less favorable method. But the conditions may vary; and the relative advantages of the two methods may, therefore, often be reversed.

Nothing, for instance, can be better established than the advantage of expensive machinery and plant in the textile industries, in transportation, and in the manufacture of nails. Yet to this day homespun clothes and rag carpets are used alongside of the products of the mills of Bradford and of Philadelphia; the hand nailer still plies his laborious and ill-paid task at the forges of the Black Country in Staffordshire; and in our own land blacksmiths are still probably found who make their own nails. Wagons and stages compete with railroads even in this country; while in Mexico carriers with packs on their backs and donkey-drivers with herds of asses carry freight at less rates than railroads, or at least did so recently.†

Almost every new process passes through a long period of trial, in which its comparative merits remain in suspense. Only gradually it gains a general acceptance. The old methods linger a long time under circumstances where their application continues to present equal or superior advantages.

* A coal-cutting machine, or a machine for moulding cast-iron pipes, takes the place of a great deal of manual labor. Machines for both these purposes are in practical use to a limited extent; but it is not yet positively demonstrated whether they are cheaper or dearer than labor. A decrease in interest, or in the other costs of operating them, or an increase in the price of labor, or even an interruption in the supply of labor, might insure their general introduction. Some operators, it is said, retain them for the especial purpose of averting strikes.

† I was told in the City of Mexico that rosin for the use of the gas works was brought on asses' backs from the state of Morelos, some fifty miles distant, at less charge for carriage than by rail. This was in the spring of 1884.

Somewhere the advantages of the old process and of the new are about evenly balanced; and there a slight change in the cost of either would effect a great change in the relative extent to which each is employed.

About the dividing line where the advantages of machine methods and hand methods are evenly balanced, the price of labor's services will be found equal to the cost of the services of such auxiliary capital as would replace it. This line of equilibrium need not long remain stationary. It varies with every variation in the price of labor and rate of interest; it also varies with every improvement or change in the different methods. To-day it probably is other than it was yesterday or than it will be to-morrow. Machine methods steadily expand at the expense of hand methods. The cheapening of machine-made fabrics banishes from use antiquated homespuns and picturesque local costumes. A lowering of railway tariffs will some day stop the traffic of the Mexican donkey-driver. A rise of wages which should reach the poor nailers of Staffordshire would leave their forges cold and idle forever.

In many cases, the decision between the different methods depends upon the size of the market to be supplied; in others, it depends mainly upon the constancy with which tools can be used. While a machine stands idle, the interest on its cost keeps running; but labor can be discharged or turned to other work. A power crane represents a large class of expensive tools which accomplish the work of many men. It can only be used when its employment is tolerably constant, but it then effects a great saving. A steam plough may sometimes be profitable on a large farm, but never on a small one. A type-writing machine is only used where much copying is done. A calculating machine can only be profitably used where many similar calculations are carried on, as in the Massachusetts Bureau of Labor Statistics. (*Report to Columbus Convention, 1883, pp. 7 and 8.*)

A reaping machine dispenses with many laborers, with a binder attached it dispenses with many more; but even in the United States the use of these machines is not universal. They compete to some extent even here with hand labor.

The agricultural processes of different countries are among the surest indices of the condition of the laboring population. In Germany, it is a common sight to see a cart drawn by a woman and a dog: where labor is dearer and money more plenty or the people a little easier, a horse releases both alike from their unnatural task. In the United States, where labor is dear, costly agricultural machinery is extensively used, in spite of the smallness of the farms: it is much used in England also, because there the farms are large; and wages, although lower than in the United States, still far exceed those of other countries. In Russia, on the other hand, in Mexico, in Asiatic countries, and even in Southern Europe, we find the rudest tools: baskets are used instead of wheel-barrows, wooden ploughs instead of iron ploughs, or gangs of spade-men replace both the ploughs and the beasts which draw them. A part of this is no doubt due to sheer stupidity; but much is also due to the price of labor and the rates of interest. The high cost of tools, and especially the difficulty of making repairs, in rude countries are additional drawbacks to the use of auxiliary capital.

In no country, perhaps, is common labor so cheap when compared with its efficiency as it is in Mexico; and in few are the interest and the risk of employing capital so great. Machinery and tools are there of the rudest description. Scarcely anything is done by the use of fixed capital which it is possible to do by hand. Entirely different methods of silver mining and reduction are pursued to the north and to the south of the Rio Grande. It is sufficient explanation that sixty cents a day is higher wages beyond the frontier than three dollars on this side for equal work,

while the cost of machinery in Mexico is perhaps double. Asses are the one form of capital freely used by the Mexicans, but asses are there relatively as cheap as men.

The construction of water works affords an instance where the comparison of the cost of interest and the cost of labor is very direct. It is often a question whether to make use of a near source of supply, and pump by steam, or to go to a farther source, and utilize gravity. So far as cost is concerned, this question resolves itself into a comparison between the wages of engineers and firemen and the cost of coal (which is mostly wages) in the one case, and the interest on a longer pipe line, which may be necessary, in the other case.

In the foregoing examples, the competition between labor and capital is palpable and open. But this is not true of all the cases where auxiliary capital and labor displace each other; perhaps it is only true of the smaller part of them. Sometimes the choice between using auxiliary capital and labor assumes the form of a choice between articles produced mainly by the use of one or of the other, as is the case with the competition between natural gas and coal. The cost of mining coal, and especially that of mining soft coal, is little else than wages; while the cost of natural gas is almost entirely interest on the plant needed for its conveyance. The distance to which natural gas shall be carried is a question of the rate of interest and of the price of mining coal. Artificial gas, also, is more and more used as a substitute for coal; and its cost is largely interest on the expensive plant needed for its manufacture and distribution. Indeed, of all the many contrivances to save fuel, every one results in the outlay of additional capital and in economy in the amount of labor employed.

In the case of lighting, electricity appeals to almost exactly the same wants as gas; but the proportions of capital and of labor employed vary greatly between them. If a gas plant of given size is worth fifty thousand dollars,

and requires the labor of fifteen men in operating it and in mining coal, whereas an electric plant supplying the same number of lights is worth one hundred thousand dollars, and only needs the labor of ten men, who will deny that the relative cost of electric lighting and gas lighting depends on price of labor and on interest?

We have so far spoken only of cases where definite amounts of labor and of capital supplant each other, either directly or indirectly, in producing the same things; and we have been compelled for the sake of clearness to limit ourselves to simple and obvious cases. Industrial operations, however, commonly involve so many and such various factors that it is difficult or impossible to measure or contrast the amounts of labor and of auxiliary capital employed in each of the different combinations whereby the same things are produced; and yet it does not follow that the influence of their respective cost upon the selection made is less strong because it eludes observation. Furthermore, there are many cases of the displacement of labor or of auxiliary capital, the one by the other, where there is really no actual substitution, and where the change does not result in producing the same things. While the employer seeks every opportunity to substitute labor and capital for each other at a profit, he is just as earnest to discover and to stop every outlay which fails to yield to him the usual rate of profit. He scrutinizes every item of his expenditure. If any one item of labor is not repaid out of the product together with the usual business profit, he dispenses with it. If any auxiliary capital does not afford a full profit, he seeks some other use for it. He is equally alert in his search for new forms of profitable investment, both of the funds thus liberated and of any new accumulations. He will devote a part to buying labor and a part to employing auxiliary capital. How much shall go in each way, and whether in the old or in some new proportion, depends, in great part at least, upon the rates of wages and of interest.

One of the ways in which capital may be diverted from the payment of wages to auxiliary uses without directly supplanting any definite portion of labor is in the case of buildings. Where interest is high, there is too much use for money to sink it in costly buildings. We put up with cheap temporary structures. The reverse is the case where interest is low. In no country, perhaps, does the cost of employing capital both as to interest and as to risk bear so low a ratio to the price of labor as in England. Consequently, there is a lavish expenditure in fixed capital. An American arriving in England wonders at the massive docks on the Mersey; and he hears with amazement that the average cost of English railroads is two hundred thousand dollars per mile. But even in America the rate of interest has of late approximated to that which prevails abroad, while no similar reduction has occurred in the cost of labor. Therefore, rough sheds give place to costly depots of brick and stone; ten-story office buildings and apartment houses rise in our cities; and the steam ferries and wooden trestles which formerly carried our railroad trains are replaced by iron bridges costing hundreds of thousands of dollars.

But it is not only by the use of fixed instruments that capital is withdrawn from the purchase of labor. This is just as effectively done when large stocks of materials and goods are kept on hand, whereby the movement of circulating capital is retarded, and its distribution in wages made less frequent. Merchants and speculators may keep on hand larger or smaller stocks of goods. Manufacturers and shippers may hasten or slacken the processes of manufacture and transportation. All will be guided by the expectation of gain; and this reduces itself to a comparison of the interest it will cost to carry their wares with the saving in other costs of production, or with their estimate of the prospective advance in the price.

Where the processes of productive industry can be

hastened by the use of additional labor, as in floating logs down the rivers of Maine and New Brunswick, the question is whether the cost of such labor will or will not equal the interest saved. Where by protracting the duration of a process its products gain in quality and value, as happens with leather and wine, the choice of processes depends upon the comparison of the enhancement of value with the additional interest. In different countries a different selection may be made.

When interest is low and wages high, the employment of superfluous or unnecessary labor is carefully avoided; but large stocks of goods are freely kept on hand, both for productive and for speculative purposes. Low rates for money notoriously foster speculation; but, when a flurry comes over the money market, operators hasten to realize. In Europe, low rates of interest lead to a more general adoption than is usual here of the slower and the more perfect processes. In Scotland, vast quantities of pig iron are carried "in store," as a speculative investment, with the expectation of making interest on capital out of the rises in price which occur from time to time. Our Southern States are the world's chief producers of cotton; but the bulk of the crop soon gravitates to England, where the world's stock is mostly carried because of the difference in the rate of interest, which in the interior of Texas is not less than ten or twelve per cent., and in England is not more than three or four.

Where interest is high and wages are low, as measured in money or exchange value, there we find a scarcity of implements and scanty stores of goods; but labor is there used with profusion alike in productive and in unproductive employments. More hands are employed to do the same useful tasks, supernumeraries and drones are more readily tolerated, and domestic servants are employed in greater numbers. In Russia or Mexico or India, countries where labor is exceedingly cheap, a gentleman

scarcely ever travels without being accompanied by one or more servants; but he will find the hotels devoid of the most necessary and simplest articles of furniture. The feudal nobles were often poor in money, and their households were wanting in many conveniences which every mechanic's home can now afford, but, on the other hand, they were surrounded by domestics and retainers of high and low degree, in numbers which would be ruinous to the wealthiest nobles or bankers of our time. It was only possible to bear the charge of all this throng of followers and menials because the cost of labor was small. Remuneration, the food, clothing, and shelter obtained, may for the habits of that time have been ample; but it was paid in commodities which the feudal proprietor could have used in no other way. The money value of his herds and of his lands and crops was next to nothing: they could not be exchanged for money or for goods, and could only be used in this way, to swell his pomp and uphold his dignity and power.

We have hitherto spoken chiefly of the choice between different methods of producing the same commodity or commodities which are virtually the same. This is guided solely by the preference for cheapness.

The choice between industries which produce different commodities is guided in much the same manner. The amount which men desire of any particular commodity varies as its price varies. But cheapness is not here the sole motive of choice, and variations in price do not influence the demand for every commodity in the same degree. The demand for bread is but little affected by price; but the demand for seats at the opera is affected very greatly.

Observe how greatly the proportions of labor and of auxiliary capital employed in different industries vary. In growing wheat or raising garden produce, apart from the value of land, the outlay consists almost entirely of labor;

but in pasturage, on the other hand, an utterly insignificant amount of labor under some conditions is sufficient to care for vast sums of capital, as is the case on Western ranches or on Australian sheep-runs. The lace-maker requires no capital but a cushion and some thread. The prospector in our Western mining regions requires no capital but a grub stake and a pick and spade and basin. Little more capital than this is needed by the fisherman and the hunter. In making roads or in building dams or embankments, very little capital sets in motion great amounts of labor. On the other hand, in operating a railroad, a vast amount of capital is operated by a few laborers. In a water works, the proportion of labor is still less. In a water works on the gravity system, a plant worth one hundred thousand dollars may sometimes be readily managed by a couple of men.

It is not necessary to inquire here what may be the extent and the limits of the influence which cheapness exerts upon the choice between industries. It is sufficient to observe that, so far as this influence extends, low interest and a high price of labor encourage industries which employ large capitals and small amounts of labor, and men indulge freely in those gratifications which such industries provide; but that high interest and low-priced labor stimulate industries which employ much labor and little capital.

The choice between industries producing different commodities by different proportions of labor and capital, so far as it is guided by cost, is therefore decided in the same way as the choice between different methods of producing the same commodity; namely, by the relative cost of labor and of interest. Were it impossible that labor and auxiliary capital should supplant each other in the production of a single commodity, the demand for labor and for the use of auxiliary capital would still depend upon their relative cost or price; for it would depend absolutely and

directly upon the demand for the different commodities into which each respectively enters the most largely, and this demand, always supposing desire to be governed by cheapness alone, would depend in turn upon the price of labor and of interest. The relative demand for labor and for auxiliary capital would still depend upon the price of their use; but the process would be a little less direct than where the choice lies between different methods of the same industry.

The law of the price of labor would then assume this form: *Equilibrium can only exist in the price of labor and in the price of using capital when it is impossible to augment the sum of gratifications by supplanting industries employing a large proportion of one by industries employing a large proportion of the other.*

Among the industries between which desire is evenly balanced, there are some in which labor predominates, and some in which capital predominates. The price of labor which will produce any gratification in the former industries equals the cost of using capital to produce in the latter other gratifications equally esteemed by human desire. And the same prices will be paid for the use of labor and for the use of capital in all their employments as are paid for them here.

If the price of labor be excessively high, the price of those commodities into which labor most largely enters will also be high, and the demand for them will slacken. Employers will withdraw capital from their production in order to embark it in industries using a greater proportion of auxiliary capital. The demand for labor and its price will fall, and the use of auxiliary capital will grow at its expense until equilibrium is restored. Thus every departure of wages from their normal rate works its own cure.

But, in so far as desire rejects the guidance of cheapness and is led by the various human appetites, it may, according to the nature of those appetites, direct industry into

channels requiring much labor or into others requiring much capital. In the first case it stimulates and in the latter case it depresses the demand for labor. But the further consideration of this point lies without the scope of this paper.

V.

In this paper we have treated the wages question as a special case of the law of value and subject to the operation of supply and demand. We recognized at the outset that supply, being for moderate periods of time constant, the market price depends upon the demand, while the demand in its turn always depends upon price; and we set about finding the condition upon which equilibrium would establish itself in these things. In so doing, we were obliged to define wages; and, in the only sense in which wages influence demand, they mean the money price of the services of labor.

We have seen that capital and labor compete with each other for employment, being able often to supplant each other and to render the same or equally desirable services; and we have noticed how greatly the amounts vary of the capital and of the labor which can do this in different employments.

Where the smallest amount of capital will supplant the largest amount of labor, there the advantage of employing capital is greatest, and there capital will be exclusively employed: where the least amount of labor will supplant the largest amount of capital, there the advantage of labor is greatest, and there labor will be exclusively employed. The advantages of labor over capital and of capital over labor shade off from these points in an infinite number of successive and minute gradations until they finally merge at a point where labor and capital can be indifferently used with equal advantage and profit to the employer.

At this point, the same price must be paid for the services of labor as for the same or for equal services ren-

dered by capital. We accordingly reach this formula: *The same price, whether it be called wages or interest, is paid for that amount of labor and for that amount of capital which can supplant each other and render the same services in those industries where their relative superiorities merge, or which can in different industries render services equally esteemed by effective desire. And the same prices as are paid in these cases for labor and for the use of capital are also paid for them in all their other employments.*

It seems to follow from this that in a certain sense wages and interest are the same thing; that is to say, that they are paid indifferently by the employer for services which, although rendered by very diverse and competing agencies, are to him equivalent. This conclusion accords with the fact that high or low rates for interest and for wages often coincide, and that their fluctuations to a great extent happen and progress concurrently.

To complete the theory of wages, it remains to inquire at what point labor and capital do actually supplant each other, and what are the causes of wages and interest being really high or low. These causes are all comprised in the state of nature and of the arts, in the supplies of labor and of capital, and in the character of human appetites. Space forbids our entering further upon these topics here.

STUART WOOD.

THE AUSTRALIAN TARIFF EXPERIMENT.

The rival policies of protection for domestic industries and tariff for revenue only have been tried in Australia, side by side, under conditions enough alike and for a long enough time to give value to a comparative statement of the progress made by New South Wales and Victoria. The latter is the smaller and the younger of the two. It was created, however, simply by cutting off a portion of New South Wales; and it has had a separate existence for nearly forty years. The discovery of gold mines drew population rapidly into the younger colony; and for a time it had a larger population than the mother colony, in which the mining excitement had somewhat abated. Each colony controls its own affairs. Victoria early adopted the protective system. New South Wales adheres to free trade, or, more exactly, a tariff for revenue only. In 1886, the colonial legislature made a movement in the direction of protection, imposing many new duties and advancing old ones; but this step was retraced at the very next session of the legislature. The colonies adjoin each other. Melbourne and Sydney are the commercial rivals of the Australian continent. Each colony is entirely satisfied with its own fiscal system. We observe one important fact at the very threshold of this inquiry; namely, that States may exist side by side under the two antagonistic policies, and neither will drive the other out of existence or into bankruptcy.

Since 1870, the growth of population has been more rapid in New South Wales than in Victoria.* In the year mentioned, the former colony had 520,000 inhabitants, and the

* The facts regarding these colonies here stated are taken from *The Colonial Civil List* for 1887; Keltie's *Statesman's Year-book* for 1888; Mr. Hayter's comprehensive and well-arranged *Victorian Year-book* for 1886-87; the *British Colonial Statistical Abstract* for 1886; and, some previous years, a semi-official publication entitled *An Essay on New South Wales*, by C. H. Reid, Sydney, 1876; and reports from Mr. Griffen, United States consul at Sydney, in the monthly publications of *Consular Reports* for March and November, 1887; and in special issue No. 40, *Consular Reports*; and the *Handbook to the Statistical Register of New South Wales*, 1886, by T. A. Coghlan, government statistician.

latter had 730,000; in 1880, New South Wales had gained substantially on the other, having 730,000 inhabitants to 860,000 in Victoria; in 1886, New South Wales had practically caught up with Victoria, the former having a population of 1,001,966 and the latter of 1,003,043. In sixteen years, the population of the free-trade colony had nearly doubled, and that of the protection colony had increased thirty-seven per cent. The *Victorian Year-book* gives only immigration and emigration by sea; and Mr. Hayter points out that there are now ample facilities for moving from one colony to another by land, and that at Victorian ports immigrants in transit are counted, so that in the case of his own colony the numbers of immigrants and emigrants are liable to overstatement. The figures show that in the thirteen years, 1873-86, Victoria received 741,180 immigrants, and lost 614,906 emigrants; New South Wales received 669,795 and lost 376,461, so that the protection colony's net gain from immigration was 126,274, and the free-trade colony's net gain was 293,334.

During the six years, 1881-86, Victoria made a net gain of population from all the Australasian colonies except New South Wales amounting to 83,657; but during this period her net loss to New South Wales was 27,961.

During the eight years, 1879-86, the free-trade colony disposed of nearly three times as much land as the protection colony; but this would seem to be due to the higher price at which Victoria held her public domain, and the greater amount of grazing in New South Wales. The latter sold and granted more than forty-six and a half million acres of land at a little less than twenty shillings an acre; while Victoria disposed of less than fifteen million acres at a trifle more than thirty shillings an acre. Victoria greatly exceeds New South Wales in the production of wheat, barley, oats, potatoes, and wine; and New South Wales produces about fifteen times as much maize as Victoria. With an equal population, New South Wales had in 1886 considerably more horses, cattle, and sheep than Victoria.

Between 1880 and 1886, New South Wales increased its railroad mileage from 849 to 1,935; while Victoria increased its railroad mileage only from 1,199 to 1,753. The smaller

area of Victoria renders a large mileage less necessary than in New South Wales. The cost per mile of railroads at the end of 1885 was for Victoria £13,634 and for New South Wales £11,994; but this difference is explained by the fact that in Victoria all railways have a gauge of five feet three inches, while in New South Wales, with the exception of one line having that gauge, the standard American gauge of four feet eight and a half inches has been adopted. In 1885, New South Wales had 10,351 miles of telegraph and Victoria had 4,094, which may also be accounted for by the difference between the areas of the two colonies. Large as this difference of area is, in each of them the total population is so small compared with the area that, so far as land is concerned, the two colonies are in practically the same economic condition.

The bank deposits of Victoria were in 1870 largely in excess of those of New South Wales, being £10,899,026 in the former and £6,107,999 in the latter; in 1875, the bank deposits in the two colonies were almost exactly equal, being for each colony a little more than thirteen million pounds; in 1886, they were £31,239,472 in Victoria and £28,428,253 in New South Wales. In each colony, the aggregate bank assets had increased between 1881 and 1886 from less than twenty-eight to more than forty-one million pounds. In 1887, the liabilities of the banks, exclusive of capital, were £35,631,420 in Victoria and £31,739,090 in New South Wales; and the assets were £43,623,030 in Victoria and £42,095,290 in New South Wales. On the 30th of June, 1887, the ratio of bank liabilities to assets was 75.10 per cent. in New South Wales and 81.68 per cent. in Victoria.

The savings banks statistics show immense gains between 1881 and 1886. In 1871, the deposits were £930,000 in New South Wales and £1,100,000 in Victoria; in 1881, they were £1,500,000 in the former and £1,600,000 in the latter; in 1886, they were £3,504,804 in the former and £3,431,000 in the latter. Mr. Hayter gives two statements of the number of depositors and the amount of deposits in Victorian savings banks in 1886, without offering any explanation. They evidently are statements for different dates in the same year. The

numbers of depositors in New South Wales in the three years indicated were 21,000, 32,000, and 111,944, and in Victoria 38,000, 76,000, and 194,631. According to these figures, in 1871 the average deposit was £44 in New South Wales and £29 in Victoria; in 1881, it had risen to £47 in the former and fallen to £15 in the latter; and in 1886 it had fallen in New South Wales to £31 6s. 2d. and risen in Victoria to £17 12s. 7d. But the total number of depositors given in the *Victorian Year-book* is the sum of the depositors in the general savings banks and the depositors in the post-office savings banks; and probably a great many persons are depositors in both. The figures given in the *New South Wales Handbook* show that in 1886 the general savings banks of New South Wales contained £2,081,498, belonging to 52,378 depositors, an average of £39 15s. each. The post-office savings banks held £1,423,305, belonging to 59,566 depositors, an average of £23 18s. Mr. Hayter's figures for Victoria the same year show 111,031 depositors and £2,322,959 of deposits in the general savings banks and 78,328 depositors and £1,266,957 deposits in the post-office savings banks. In the former, the average deposit was £20 18s. 5d., and in the latter £16 3s. 6d. Assuming that no persons have deposits in both kinds of banks, and that the total number of depositors in Victoria is 194,631, as Mr. Hayter states in one place instead of 189,359 as he states in another, 19.4 of the population of Victoria and only 11.17 per cent. of the population of New South Wales are depositors; but the average deposits are much larger in the latter colony, and the aggregate of deposits in New South Wales has gained rapidly on that of Victoria. On the basis of population, the average deposit in New South Wales would be a trifle the larger. All the post-office savings banks pay 4 per cent.: the general savings banks pay 4 per cent. in Victoria and 6 per cent. in New South Wales.

In both colonies, the eight-hour working day prevails. The following are the rates of wages in the two colonies, so far as the tables in the *Victorian Year-book* and the *New South Wales Handbook* admit of comparison:—

	New South Wales.	Victoria.
Masons,	11s.	10 to 12s.
Bricklayers,	11s.	10 to 12s.
Plasterers,	11s.	10 to 12s.
Carpenters and joiners,	9s.	10 to 12s.
Painters,	9s.	8 to 10s.
Laborers,	8s.	6s. 6d. to 10s.
Slaters,	10 to 12s.	10 to 12s.
Iron moulders,	8s. to 9s. 4d.	8 to 12s.
Plumbers and gas-fitters,	10 to 11s.	10s.
Boiler-makers,	10s.	10 to 14s.
Shipwrights,	11 to 12s.	13s.
Farriers (per week),	35 to 55s.	35 to 50s.
Blacksmiths,	6 to 10s.	10 to 14s.
Tinsmiths,	7 to 9s.	6s. 8d. to 10s.
Tailors (per week),	50 to 60s.	50 to 60s.
Pressers (per week),	50 to 60s.	40 to 55s.
Compositors,	13 to 14d. per M.	13d. per M.
Upholsterers,	10 to 12s.	7s. 6d. to 10s.
Coopers (per week),	40 to 50s.	54 to 60s.
Quarrymen,	7s. 6d. to 10s.	8 to 12s.

Mr. Hayter states that in 1886 the unemployed in New South Wales numbered 9,813, and in Victoria only 4,478.

Consul Griffen, in a report to the State Department, dated June 11, 1888, presents a statement that the annual average consumption of sugar for each individual is 92½ pounds in Victoria and 102 pounds in New South Wales. And he says: "An interesting fact in connection with the consumption of sugar in the two colonies is that sugar is not the only luxury which is more largely used in New South Wales than in Victoria. The population of the two colonies is about the same; but the average consumption of tea, currants, raisins, beer, spirits, tobacco,—indeed, almost every luxury except coffee,—is heavier in New South Wales than Victoria. . . . Mr. Pulsford, to whom I am indebted for this comparison, is very decided in the opinion that the well-being of the two populations can be shown by their relative spending powers. He thinks these comparisons very significant, and in endeavoring to explain why the people of New South Wales consume more sugar, currants, tobacco, beer, spirits, etc., than the people of Victoria, says:—

"If the people of New South Wales took more spirits and less tea than the Victorians, the case would look different; but, when we find that New South Wales is ahead in both intoxicants and non-intoxicants, we must be very dull scholars if we cannot understand the reason why.

Sugars and dried fruits also, which in the form of lollies and cakes represent so much enjoyment to the children, are bought much more freely in this colony. A portion of this excess is probably due to the fact that the population of New South Wales represents a greater effective or working power than that of Victoria. But this is far more than outweighed by the fact that the average duties on the articles are much higher in New South Wales than in Victoria: thus sugar pays 5s. (\$1.22) per hundred pounds duty against only 3s. (73 cents) in Victoria, and spirits pay 12s. (\$2.92), both customs and excise, while in Victoria the excise is 8s. (\$1.95) and 10s. (\$2.43). Of course, if the duties in New South Wales on these articles were as low as they are in Victoria, the consumption in New South Wales would be still larger."

As the prime object of a protective tariff is to promote manufactures, it is a fact of great importance that, according to Mr. Griffen, the horse-power of the factories in the free-trade colony in 1887 was 25,192 against 20,160 for the protection colony; and the manufacturing industries of the free-trade colony employed 45,783 persons, and those of the protection colony employed 49,297, with the qualification that several trades which are included in the Victorian statement are not included in the statement for New South Wales. Mr. Griffen believes that, with this correction, the manufactures of New South Wales employ as many persons as those of Victoria; while the value of the manufacturing plant in the former is estimated at \$25,000,000, and that of the latter at \$23,270,000. Mr. Keltie's figures differ from these mainly in giving a most disproportionate valuation to the manufacturing plant in Victoria. According to him, in 1886 New South Wales contained 3,694 manufacturing establishments, employing 45,753 persons, having engines of 25,192 horse-power, and valued at £5,801,757; while in 1887 Victoria had 2,770 establishments, of which 1,440 had engines with a horse-power of 20,000, employing 45,773 persons, with a plant valued at £11,028,000. It is quite possible that some elements in the value of the plant in Victoria were not included in New South Wales.

The woollen industry is not protected in New South Wales: in Victoria, it is protected by duties ranging from $7\frac{1}{2}$ to 30 per cent. In neither colony has the manufacture of woollens yet become an important industry. In the free-trade colony, the number of persons it employs is not only small, but growing

smaller, although, measured by the product, the woollen manufacture is not running down much. The number of persons employed and the yards of material turned out for five years are as follows:—

Year.	Employees.	Yards of cloth.
1882	385	319,225
1883	372	352,000
1884	312	305,000
1885	323	337,750
1886	182	324,788

The Victorian mills employed 750 persons in 1882, and 980 in 1887. In this last year, however, there was a decrease, as compared with 1886, of one mill (leaving eight in operation), of 3,232 spindles, of 146,489 pounds of wool consumed, of 76 employees, of 119,215 yards of piece goods, and 398 pairs of blankets manufactured, against which there was a gain of 48 shawls made. In fact, the Victorian woollen industry seems to be in a discouraging condition. Mr. Griffen reports:—

At the last session of Parliament, an additional ad valorem duty of five per cent. was added; but the manufacturers have ever since been clamoring for a still farther increase. Mr. Munro, a member of the Victorian Parliament and a manufacturer, stated recently in the Assembly that the mill with which he was connected lost the whole of its capital, \$90,000, of which \$15,000 had been subscribed by himself; and that the woollen industry of the colony was on the verge of ruin. The Ballarat Mill, he said, which was regarded as the most substantial in Victoria, had not paid a profit for years; and an ad valorem duty of twenty per cent. might possibly enable the mills to struggle along for a few years. Then they would die an agonizing death. He did not think that even fifty per cent. ad valorem duty would make them profitable to their owners.

The woollen protection of Victoria, which has failed thus far to make the manufacture of woollens profitable, has not done a great deal to encourage sheep-raising. New South Wales contained 17,560,000 sheep in 1872, over 35,000,000 in 1880, nearly 38,000,000 in 1883, and 39,169,304 sheep in 1886. During each of these years, the number of sheep in Victoria was between ten and eleven millions. In 1872, Victoria had more than half as many sheep as New South Wales; in 1886, it had but little more than one-fourth as many. The wool export of New South Wales was nearly fifty per cent. more

than that of Victoria in the years 1880, 1881, 1882, and considerably more than fifty per cent. in excess in the years 1883, 1884, 1885, 1886. A large portion of the wool exported from Victoria is produced in the adjacent colonies.

The manufacture of boots and shoes is protected in Victoria, and not in New South Wales. Naturally enough, New South Wales imports boots and shoes much more freely than Victoria. In 1886, the imports by the former amounted to £582,313, and those by the latter to only £105,828. But in the same year New South Wales exported £23,164 worth of home-made and £80,673 worth of imported boots and shoes, a total of £103,837; and Victoria exported only £20,926 worth of home-made and £28,334 worth of imported boots and shoes, a total of £49,260. During the five years, 1882-86, New South Wales exported fifty-five thousand pounds worth of boots and shoes made in the colony more than Victoria did. The boot and shoe industry in New South Wales employed 2,272 persons in 1886, and during a term of years the number was slowly increasing. The boot and shoe export of Victoria in 1879 amounted to the considerable sum of £128,217, or more than two and one-half times what it was in 1886. In fact, the export in 1886, although larger than in 1885, was smaller than it was so long ago as 1872. The following passage, from the report of a committee to a meeting of the boot and shoe manufacturers of Melbourne, is quoted by Mr. Baden Powell in his article in the *Contemporary Review* for March, 1882:—

Our travellers report to us that they find very great difficulty in placing our orders on the neighboring markets, principally through the competition of Sydney, with their own manufacture and European imported sold sufficiently low to secure the custom. It must be remembered that Sydney has always had a steady export of her own manufactures, and that her manufacturers are giving inducements to our best work people to remove there. It also must be remembered that all leathers—the boot manufacturers' raw material—are admitted free into the port of Sydney; while an import duty of seven and a half, ten, and twenty per cent. is enforced in Victoria, thereby placing the Sydney manufacturer at an advantage.

The fact that three years after this complaint of the protected shoe manufacturers their export trade had fallen to forty per cent. of what it was three years before their com-

plaints indicates that they continued to find it difficult to place their orders in competition with the shoe manufacturers of the free-trade colony, and continued to lose their best workmen to Sydney.

Taking the manufacturing industries of Victoria in a mass, it appears from the colonial *Year-book* that in 1887 there was a decrease, as compared with 1886, of 14 establishments and 3,193 employees in all the concerns, exclusive of flour mills, breweries, distilleries, brick-yards, potteries, tanneries, fellmongeries, wool-washing establishments, woollen mills, soap, candle, and tobacco factories. Including all of these, there was a decrease of 43 in the number of establishments and 3,524 in the number of employees.

The number of persons employed in all manufacturing processes steadily increased in New South Wales from 25,714 in 1879 to 45,783 in 1886. In the latter year there were engaged in making agricultural and dairy implements 281 persons; boots and shoes, 2,272; clothing, 3,260; in iron and brass foundries, 1,292; in machinery and engineering, 2,197; in other metal industries, 3,449; in building materials, 9,187; ship building and repairing, 1,077; furniture, bedding, and the like, 1,380; books, paper printing, and engraving, 3,659; and in carriage works, 1,917.

As we should expect especially protected industries in Victoria to show a development beyond that of like industries in New South Wales, so we should expect the commerce and shipping of the latter to exceed that of the former. Here the results are less disappointing. In the ten years, 1876-85, New South Wales built 627 vessels, with a tonnage of 41,500; and from year to year there was generally an increase. In the same period, Victoria built 80 vessels, with a tonnage of 3,811, the business generally, and in the last five years rapidly, diminishing. The steam and sail shipping owned in the two colonies in 1885 was 67,517 tons for Victoria and 122,293 tons for New South Wales. During the ten years, 1877-86, the aggregate tonnage of vessels entering and clearing for the two colonies was 26,122,782 tons for Victoria and 32,813,029 tons for New South Wales. In 1886, 97.05 per cent. of the ships arriving in Victorian ports came with cargoes and 2.95 per

cent. came in ballast, while only 73.11 per cent. sailed with cargoes and 26.89 per cent. sailed in ballast. Numerically, 68 ships arrived in ballast and 625 sailed in ballast. In tonnage, 1.01 per cent. arrived in ballast and 24.34 per cent. sailed in ballast. On the other hand, of the shipping that entered and cleared from ports in New South Wales in the seven years, 1880-86, 10,513,392 tons came with cargoes and 2,240,556 tons came in ballast, 12,539,808 tons sailed with cargoes and 227,064 sailed in ballast. In 1886, 1,760,649 tons entered with cargoes and 353,969 entered in ballast, 2,103,351 sailed with cargoes and only 40,635 sailed in ballast. For 1886, 16.74 per cent. of the tonnage entered in ballast and 1.89 per cent. cleared in ballast. For the seven years, 17.54 per cent. entered and 1.8 per cent. cleared in ballast.

The protective system is intended specifically to diminish importation, and is also expected to prevent money from going out of the country. For the seven years, 1880-86, the balance of trade was against both these colonies; but, taking specie and bullion out of the account, the balance of trade in merchandise against Victoria was more than £11,000,000 greater than it was against New South Wales. The free-trade colony imported £13,000,000 worth more than Victoria did, but it also exported £24,000,000 worth more than Victoria did. The imports of New South Wales for the seven years were £140,866,417, of which £9,972,875 was specie and bullion. The total imports of Victoria were £123,544,154, of which £5,879,481 was specie and bullion. The exports of New South Wales amounted to £118,522,629, of which £10,531,758 was in specie and bullion; and the exports of Victoria amounted to £108,201,103, of which £24,687,791 was in specie and bullion.

In 1886, New South Wales imported nearly twice as much machinery as Victoria, but did not import quite so much iron and steel. The former imported five times as much of the manufactures of leather and more than twice as much of linens, woollens, drapery, and haberdashery as Victoria did. Both colonies re-exported much of their imports.

The Victorian exports in 1886 were four and a half million pounds sterling less than in 1881 and two and a half millions

less than in 1876. The articles showing an increase in 1886 over both the previous dates were potatoes, tea, hides, soap, hay, and straw. Wine, candles, bark, and tin ore show an increase over 1881, but a decrease from 1876. Books, clothing, butter and cheese, breadstuffs, skins and pelts, leather, copper ore, and live stock show an increase over 1876, but a decrease from 1881. In trading with the other colonies, Victoria exported more than she imported in 1883, when the excess was £85,926; but in all the other years from 1876 to 1886 she imported from the other colonies more than she exported to them, and the excess was in one year over two million pounds sterling, in four other years over one million pounds, and in four other years over six hundred thousand pounds per annum. In 1886, Victoria imported from New South Wales goods worth £4,350,871, and exported to New South Wales goods worth £2,624,713. Victorian exports for 1886, as compared with 1885, show increases of £420,464 and decreases of £4,176,901, a net decrease of £3,756,437; and of this the decrease in exports to her free-trade neighbor was £1,181,861. Victoria imported from New South Wales more than twice as much as she exported to New South Wales in 1871 and nearly twice as much as in 1881. In 1885, New South Wales outranked Victoria in the total value of her exports of home production and in the value per head of population of the exports of home production.

The value of exports of Victorian manufactures for a series of years affords little evidence of advantage given Victoria by her tariff in her competition with the other Australian colonies. The exports of stationery show a decrease for every year from 1883 to 1886, both included; in agricultural implements there was a decrease from 1882 to 1884, and a small increase in 1885 and 1886; in machinery there was a decrease annually from 1883 to 1886; in saddlery and harness, the decrease runs from 1882 to 1886; in furniture and upholstery, it runs from 1883 to 1886; in woollens there was a continuous decrease from £15,692 in 1882 to £2,751 in 1886; in apparel, the decrease runs from 1882 to 1886, except that it was smaller in 1883 than in 1884; the export of boots and shoes decreased from £47,250 in 1882, year by year, to £20,926 in

1886; the export of cordage decreased from 1884 to 1886; the exports of butter and cheese, hams, bacon and lard, beef and pork, preserved meats, wool, and wheat decreased from 1884 to 1886, the decrease in wheat being from £1,426,905 to £165,391; the export of refined sugar and molasses decreased from 1883 to 1886, while that of wine increased steadily from 1880 to 1886; the export of leather decreased from 1883 to 1886; and the export of hardware decreased from 1882 to 1885: in 1886 there was a slight increase, but the export then was only £20,834 as against £69,415 in 1882.

In the absence of farther information, we can draw no particular conclusion from the fact that mortgage loans in Victoria increased year by year from £6,672,733 in 1881 to £12,224,992 in 1884, except that, as the number of loans increased only one-third, the debtors seemed to be increasing their borrowings. In New South Wales, the mortgages increased from 4,505 for £5,268,449 in 1881 to 6,933 for £7,570,210 in 1886.

The Australian experiment indicates that a protective tariff may foster particular industries, though in Victoria the wool-len industry is unprofitable, and it is not clear that the boot and shoe industry is well established. It can divert capital and labor from certain channels into others, but it is not shown that it increases the aggregate wealth and prosperity of the community or the number of persons engaged in manufacturing enterprises as a whole. It does not draw immigrants; and it naturally represses ship-building and commerce, which is one of its principal objects. It has little influence, if any, upon the rate of wages. It must amount to something very near prohibition before it can greatly reduce importation and prevent an adverse balance of trade. The customs revenues of New South Wales and Victoria are about the same, so that the convenience of collecting the public revenues at the custom-houses can be secured without invoking the principle of protection.

FRED. PERRY POWERS.

NOTES AND MEMORANDA.

THE annual meeting of the *Verein für Socialpolitik* was to take place this year at Frankfurt on September 28 and 29. Professor Miaskowski and Dr. Thiel were to present a report on usury in agricultural districts, on the means of doing away with it, and especially on the organization of credit for the peasantry. Professor Conrad and Dr. Crüger were to report on the extent to which prices are raised by retailers and other middlemen, and on possible remedies against abnormal prices. The last-named gentleman has been closely connected with the co-operative movement, and was to discuss the effect of distributive co-operation. We may mention in this connection that any person may join the *Verein* by sending his name to the secretary, C. Geibel, publisher, Leipzig, and will receive its publications on transmitting 10 marks yearly to that office.

THE figures for the cotton year, ending September 1, show that the crop of 1887-88 exceeded 7,000,000 bales, being the largest ever gathered in the United States. Down to the war, 4,000,000 bales had been reached only once, in 1859-60. That line was again passed in 1870-71 and in 1873-74; and, beginning with 1875-76, the crop began to run permanently above it. The yield for the last ten years is given by the *Commercial and Financial Chronicle* of September 15, in a review of the cotton year, as follows:—

	<i>Bales.</i>		<i>Bales.</i>
1878-79 . . .	5,073,531	1883-84 . . .	5,714,052
1879-80 . . .	5,757,397	1884-85 . . .	5,669,021
1880-81 . . .	6,589,329	1885-86 . . .	6,550,215
1881-82 . . .	5,435,845	1886-87 . . .	6,513,623
1882-83 . . .	6,992,234	1887-88 . . .	7,017,707

The above figures tell their own story as to the industrial regeneration which the South has undergone, and the solid basis on which the prosperity of that region is now established. Hardly less significant of change, though on a smaller scale,

are the figures as to the transportation of cotton by overland routes, which are now gaining at a rate inconceivable before the better organization of our railway system:—

	<i>Shipped overland.</i>
1883-84	1,049,070 bales "
1884-85	991,960 "
1885-86	1,260,279 "
1886-87	1,292,167 "
1887-88	1,441,920 "

IN our April number (page 347), we noted the passage of an Austrian act for compulsory insurance of workmen against accident. This was followed by an act for compulsory insurance against sickness, and an account of both measures has been given by Dr. M. Ertl in the *Jahrbuch für Gesetzgebung*.

The act for insurance against sickness, like its predecessor for insurance against accident, follows the general lines of the legislation on the same subjects in Germany. It diverges from the German model in that the whole system is supervised by the government of the Empire, whereas in Germany, though the system is the result of imperial legislation, its administration is left in the hands of the several states. It is part of the same divergence that the associations which carry the insurance against sickness are organized by judicial districts, and not, as in Germany, by towns and communes. And since, by the earlier act, the associations for insurance against accident are also organized geographically, it is natural that the general supervision of the whole system of insurance against both accident and sickness should be put in the hands of a central Insurance Bureau.

In most other respects, the German example is followed. Employers are responsible for the contributions, but are entitled to deduct from wages two-thirds of what they pay. The sick-pay is sixty per cent. of common laborer's wages; and, in addition, expenses of cure are defrayed, and a small funeral allowance is made. Agricultural laborers are not affected, unless their employers voluntarily join the system, the insurance of this class being left to the legislation of the separate states of the Empire.

THE annual report of the Bank of France for 1887, given in the *Économiste Français* for September 8 and 15, presents some facts of interest as to the character of the paper discounted by the bank and its branches. The total amount of discounts for 1887 was 8,268,658,000 francs, made up by 11,579,661 pieces of paper. For each piece, the following calculation is made:—

	Paris.	Branches.
Average amount,	745.90 fr.	688 fr.
" time to run,	22.4 days.	29 days.

The average sum represented by each piece was smaller than in 1886 by 21 francs in Paris and by 13 francs in the country, and the average time to run fell off two and a half days in Paris and one day in the country.

The classification of the paper discounted at Paris, 5,188,490 pieces, amounting to 3,869,744,600 francs, shows this remarkable proportion of paper of the smallest classes:—

13,755 pieces of 10 francs or less;
677,590 " " 11 to 50 francs;
977,455 " " 51 to 100 francs;
1,668,800 " " 100 francs or less.

The number of these minute notes discounted by the bank is still steadily increasing:—

1881, paper for 100 fr. or less,	1,160,945 pieces.
1882, " " "	1,224,326 "
1883, " " "	1,349,270 "
1884, " " "	1,581,515 "
1885, " " "	1,590,839 "
1886, " " "	1,592,673 "
1887, " " "	1,668,800 "

In connection with this statement as to the amount of small paper flowing into the bank from the *petit commerce*, the report as to overdue paper at Paris is worthy of note:—

Dec. 27, 1886, paper overdue and charges,	1,302,124 fr.
Recovered in 1887,	587,064
Dec. 24, 1887, balance overdue,	715,060 fr.

"It is to be remarked that in the course of the year 1887 we have had no failure of payment in our Paris portfolio."

This remarkable result is no doubt due to the fact that the paper in question had passed through one or two hands, and

was finally rediscounted by the bank, with, at least, one important indorsement. But still the small losses experienced by the Bank of France, even in revolutionary crises of the worst sort, like that of 1871, show the solidity of the mass of small dealers, for whom the bank is indirectly the constant resort.

PROFESSOR LUJO BRENTANO, on assuming the chair of political economy at the University of Vienna in April last, chose for the topic of his inaugural address "The Classic School of Political Economy," and discussed it with even less moderation than might have been expected from his previous utterances. The classic school is roundly condemned. Its doctrines as to wages and distribution are declared to be quite worthless, and the theories of Marx and Rodbertus appear once more as legitimate deductions from Ricardo's system. The following passage is characteristic:—

If it be true, as all competent observers agree, that the economic, moral, political, and social condition of English workmen is to-day immeasurably better than it was in 1840, the reason is simply that the doctrines of classic political economy on capital and labor, and the iron law of wages which goes with those doctrines, were absolutely false.

Nor is the doctrine of rent treated with more respect, while even the theory of money is said not to have been advanced by the classic writers. It is not surprising, after these criticisms, to be told that the history and description of industry are the most important tasks for the economist, and that the description of even the most modest of industrial phenomena is worth more than the acutest deductions from the selfishness of "the economic man." These remarks indicate an intention to counteract the tendencies fostered at Vienna by Menger and by other Austrian scholars, against whom, indeed, the address seems in great part directed. In a foot-note to the address as published, Brentano goes so far as to say that neither in their conception of human nature nor in the objects they sought to attain was there any difference between the mercantile and the classic writers. The only difference lies in the means by which they sought to obtain their ends. Perhaps it is a sign of Philistinism that he should yet refer with

admiration to the investigations of Thünen, who may justly be called the German Ricardo. Certainly, this address shows no such tone of moderation and conservatism as has begun recently to appear in the writings of distinguished German economists.

THE Imperial Statistical Bureau of Germany has published the results of the operations of the system of compulsory insurance against sickness for the year 1886, the first entire year for which the system was fairly in operation. Some of the figures are interesting. About 4,500,000 persons were insured, among whom there were 1,710,000 cases of sickness and 26,300,000 days of sickness. The total expenses were 58,750,000 marks, of which 53,000,000 were actually spent in relief,—medical care, medicine, money payments,—so that the average day of sickness was relieved to the extent of two marks. The expenses of administration, on this showing, are certainly not unduly large. The total receipts were 62,130,000 marks.

Another way of presenting the operations of the system is by comparing the various methods of insurance between which the sick insurance act leaves a choice. The total receipts, the payments by workmen (it will be remembered that workmen are charged only two-thirds of the contribution paid by their employers), and the payments for relief were as follows for each person for the more important classes of associations:—

[Figures denote marks.]

	Receipts from all sources per workman.	Payments by each workman.	Relief to each workman.	Excess of relief over payments.
Ortskrankenkassen,	14.9	10.1	11.9	1.8
Betriebskrankenkassen,	16.8	11.2	14.6	3.3
Hilfskassen (registered),	14.9	14.6	12.6	2.*
Communal insurance,	7.9	5.3	8.3	3.

* Deficiency.

In all cases, the workman got more than he paid, except in the registered *Hilfskassen*. These are voluntary friendly societies, which cannot levy on employers or on the public, and of course must pay expenses. Barring this exception, the workman received more or less of gratuitous aid, apparently

either from his employer's contributions or from taxation. It should perhaps be stated that *Ortskrankenkassen* are associations formed by the public authorities by grouping a number of similar establishments and occupations together. *Betriebskrankenkassen* are formed of one or more establishments in the same trade. Communal insurance appears to yield least to the workman, and yet he pays a less proportion of the expenses than in other cases.

The scale on which the legislation for compulsory insurance is being carried out is illustrated by the report for 1887 on sick insurance in Berlin. We take the following figures from the abstract of this report, prepared by Mr. Mugdan for *Die Arbeiterversicherung*. The total number of persons insured in Berlin was,

At the close of 1885,	212,649
" " 1886,	231,841
" " 1887,	261,160

By far the largest number of these (237,257 in 1887) were insured in the *Ortskrankenkassen*. The largest single association of this kind is the general *Kasse* for men and women engaged in industrial pursuits and not insured elsewhere, which had nearly 62,000 members. The *Betriebskrankenkassen* had, in 1887, a total membership of 17,893.

As the number of cases of sickness does not increase so fast as the number of members, Mr. Mugdan concludes that "the associations, after all, have made progress in checking cases of pretended sickness."

It is reported that the Russian minister of finance has instructed the Bank of Russia to make a fresh issue of inconvertible paper, to the extent of 15,000,000 roubles. The issue is made nominally on the security of gold held by the bank for the imperial treasury; but, as the notes are not convertible and the holder has no means of enforcing this supposed pledge, the issue is in effect merely so much added to the volume of paper currency, already depreciated by excess. The addition is made in order to meet the increased autumn demand for currency, which, in Russia as in other agricultural countries, drains currency from the bank or other central reservoir at the time when the crops are seeking their market.

This demand for more paper in order to move the crops will have a familiar sound to those who recall the experience of this country under the suspension of specie payments. The demand for more paper in Russia is also referred to as evidence of the increasing trade of the country and the demand for a more ample medium caused by growing prosperity. This, again, is a view of the case once familiar here, and a fresh illustration of the ease with which arguments can be found for postponing an unpleasant reform. The conclusion of the *Economist* is that, in fact, the financial position of the Russian government is so weak that it can make no effort towards throwing off its inconvertible paper. But, if so, where is the inflation to end? "Is every expansion of trade to be the occasion and the cause of further issues of notes?" That was the contention here.

ANOTHER addition to the list of economic periodicals is made by the *Archiv für Soziale Gesetzgebung und Statistik*, which appears under the editorship of Dr. Heinrich Braun, of Munich. Its scope is sufficiently indicated by the title; and, while it specializes within the field of economics, its subject is so wide and so full of important topics that there need be no lack of variety in its contents. The first number contains an introduction by the editor and papers by J. M. Bärnreither on "English Statistics as to Persons out of Work," by O. Pringsheim on the "Condition of the Working Classes of Holland," by A. Oldenburg on "Infant Mortality," and by F. Erismann on the "Physical Condition of the Working Classes of Central Russia." There is a department on legislation and another for notes and miscellanies, as well as the usual reviews. Contributions are promised from a number of writers, among whom we note some familiar names, with others which indicate that the *Archiv* will have, to a certain extent, a connection of its own. We may expect from it contributions of high value for the advancement of social science and for the improvement of legislation. There will be four numbers yearly, at a subscription of twelve marks. The publisher is H. Laupp, of Tübingen, to whom subscriptions should be sent.

Still another new publication is the *Zeitschrift für Agrar-*

politik, which is edited by K. Frankenstein, and covers a topic of much present interest in Germany. It is to be published in twelve numbers yearly, at a subscription of 7.20 marks, by the firm of Böhme, in Leipzig.

THE condition of factory labor in India has begun to attract attention; and the need of more factory legislation is shown by the report of the Bombay Factory Commission of 1885, which has been published recently in a parliamentary blue book. This Commission recommends that women be not allowed to work in the factories more than eleven hours, between six o'clock A.M. and six P.M.; that children under nine be not allowed to work at all; and that children between nine and fourteen be not allowed to work more than nine hours, between 7 A.M. and 5 P.M. The present legislation in India goes no farther than to restrict the work of children between seven and twelve to nine hours, and does not fix the time within which these nine hours must be taken.

The Commission recommends also certain sanitary provisions, of which there are now none: the giving of four holidays per month (it seems there are now but fifteen holidays throughout the year in Indian factories); regulations for insuring the publicity of the law and the rules under it; and the repeal of the present exemption from restriction of factories employing less than one hundred hands. It was in establishments of the last-mentioned kind that the most lamentable state of things was found to exist. In small ginning mills, the hours of work for months were from 5 A.M. to 10 P.M.; and at busy times work went on uninterruptedly, day and night, for a week. Yet even here legislative interference must be slow and tentative, lest the women employed be deprived of their employment or compelled to accept a reduction of their meagre wages. The Commission recommends, in regard to these cases, a restriction to sixteen hours, with two hours of rest, for factories working less than six months in the year. It does not appear that any legislation has yet followed these various recommendations.

NOTE ON THE BANK OF AMSTERDAM.

In the account of the Bank of Amsterdam, for which Adam Smith says that he is obliged to Mr. Henry Hope, there is a statement of the practice of the bank in receiving deposits of bullion, which has sometimes been found to present some difficulties. Smith (*Wealth of Nations*, Book IV. chap. iii.) says that, to facilitate the trade in bullion, the bank had adopted the plan of giving credit upon deposits of gold and silver, at the same time giving a receipt to the depositor, entitling him to take out the bullion at any time within six months, upon retransferring a sum of bank money equal to that for which he had received credit and surrendering the receipt. The person who made a deposit obtained both a bank credit and a receipt, and could not withdraw his bullion without returning both:—

The holder of a receipt cannot draw out the bullion for which it is granted without reassigning to the bank a sum of bank money equal to the price at which the bullion had been received. If he has no bank money of his own, he must purchase it of those who have it. The owner of bank money cannot draw out bullion without producing to the bank receipts for the quantity which he wants. If he has none of his own, he must buy them of those who have them.

McCulloch, in a note (p. 215 of his edition of Smith), finds this arrangement somewhat mysterious, and concludes that it was a contrivance to prevent any depositor from drawing bullion until somebody else had deposited an equal amount, and that its object was to screen the really insolvent condition of the bank. McLeod, in his *Dictionary of Political Economy*, p. 219, is unable to make anything of the arrangement, and says:—

Surely there is some extraordinary error here. How can a man, upon a deposit of £100, receive both a transferable receipt and also a bank credit for an equal amount? That is as much as to say that for every deposit a man received credit to *twice* the amount. This part of Adam Smith's account of the bank's transactions seems to me to be wholly unintelligible.

Neither of these authors seems to have understood that the transaction described by Adam Smith was simply an advance of money upon a pledge of bullion. The bank advanced

only upon assayed bullion or, later, upon coin, and to the extent of perhaps ninety-five per cent. of the assayed value. It gave the depositor or borrower, therefore, credit in bank for ninety-five per cent. and also a receipt, upon the surrender of which and the repayment of the advance and interest he could receive his bullion again. It was the ordinary case of a loan upon collateral, with a margin of value above the loan, where the right to redeem the collateral is a valuable right. It was necessary to repay the loan and *also* to return the pawn-ticket before the article pawned could be redeemed. Indeed, it is not easy to see how the business of advancing upon bullion could have been managed without some such arrangement for certifying the right to withdraw bullion, in addition to the mere repayment of the advance.

Adam Smith remarks that "the receipt and the bank credit seldom keep long together." The merchant who believed that his bullion would rise in the market might very well obtain an advance upon it for the greater part of its value, and then hold his receipt for the rise. His profit, when the rise came, he would secure either by redeeming his bullion and selling it or by selling the receipt itself. The form of the receipt is given by Mees, *Proeve eener Geschiedenis van het Bankwezen in Nederland*, p. 135, as follows:—

Anno ———, the ———.

N. N. has brought into bank 1,000 ducats at 80 stuyvers the piece, with the condition that he shall be held to withdraw the same within the space of six months, paying to the bank $\frac{1}{4}$ per cent., or that otherwise, after the expiration of the aforesaid time, they shall be understood to be forfeited to the bank at the price aforesaid.

3,000 f.

M. M.

The operation is also explained by Sir James Stewart and by Oudermeulen in his *Récherches sur le Commerce*, II. i. 59 and 235, where the regulations for the assay of ingots and for advances upon them are given.

That the Bank of Amsterdam, at the time spoken of by Smith, had parted with a large amount of specie, and so had a guilty secret to conceal, there is no doubt; but the arrangements commented on by McCulloch and McLeod appear to have no relation to that fact, but, on the contrary, to be a natural mode of carrying on a legitimate branch of business.

D.

CORRESPONDENCE.

BUSINESS PROFITS AND WAGES.

Mr. Macvane prefaces his note on the above subject in the last number of this *Journal* by the statement that his aims in writing are to make his own position clear and to abstain from controversy. I do not think he attains the former of these two aims. He certainly does not attain the latter; for he proceeds to give a paraphrase of my views on this subject, and to find fault with them. I do not wish to trespass on the patience of the readers of this *Journal* further than to say that I abide by my doctrines as expounded by myself, but that I do not accept the paraphrase of them given by Mr. Macvane.

ALFRED MARSHALL.

THE DISTRIBUTION OF PRODUCTS.

I should have preferred to have the controversy between Mr. Atkinson and myself carried on in the pages of this review, as its circle of readers, though narrower than that of the *Forum*, is undoubtedly more competent to pass upon economic questions. But, as Mr. Atkinson has seen fit to "change the venue" and as the editor of the *Forum* has kindly opened its pages to me, I will follow Mr. Atkinson into the arena he has preferred, and reply to him at length on the termination of the series of articles he is now contributing to that periodical. When the time comes, I shall have no difficulty in showing: first, that Mr. Atkinson, despite his denial, did use the term "profits" as I understood it as well as in the sense he now claims; second, that the use of the word as a synonyme for "annual national savings" is illegitimate; and, third, if we allow Mr. Atkinson this illegitimate use of the term "profits," his position is far more untenable than as I understood him, as the theoretical basis of the calculation in dispute between us disappears entirely.

FREDERICK B. HAWLEY.

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